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NEW PROFESSORS

BULLETIN
OF THE
Virginia Polytechnic
Institute

THE
STATE AGRICULTURAL AND MECHANICAL COLLEGE



Opening Number
October
1908

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FACTS ABOUT THE OPENING

The session of 1908-09 at the Virginia Polytechnic Institute was formally opened on September 23rd. Not a few changes in the faculty, the degree courses, the schedule of recitations, and the college organizations were inaugurated with the present session, while many improvements and extensions in the buildings and grounds have been made. Some of these innovations have been foretold in the April and July issues of the Bulletin, but now that they are actually realized, it will be well to review them briefly.

The requirements for entrance have been raised one full year. Candidates for admission to the V. P. I. must now stand rigid entrance examinations in English, Mathematics and History, or must furnish satisfactory evidence in the form of certificates from accredited high schools, that they have successfully covered the entrance requirements elsewhere. This change works no hardship for the poorly prepared country boy who desires to study practical agriculture. To him the Institute offers additional facilities for study and for practical experience. The School of Agricultural Apprentices has been established since last session with Prof. G. W. Walker as head master. It offers a short two-year course which will enable boys who cannot take the full college course to obtain, in addition to a thorough grounding in the elements of a good education, a knowledge of the principles and arts of agriculture, with such training in the mechanic arts and business methods as will fit them for success on the farm.

Other changes, incidental to the raising of entrance re-

quirements, have been made in the degree courses in the college proper. Both class and laboratory work in Physics and Chemistry are now given to all students in the freshman and sophomore years. The requirements in English and Modern Languages have been altered. Hereafter, freshmen and sophomores will take rhetoric while the junior year, instead of the senior as heretofore, will be given to English literature. Now the student may elect either German, French or Spanish for three successive years instead of being required, as formerly, to take two years of French or Latin and two of German. Latin has been dropped from the curriculum and Spanish substituted. The trend of all these changes is toward more election and more specialistic work in the senior year. Under the new system all the general academic and fundamental preparation will be completed in the sophomore or junior year. The senior year will be devoted exclusively to intensive specialistic study. Further election of studies is encouraged in the upper classes. The schedule has also been changed. The morning is divided up into four fifty-minute recitation periods, each class having one period vacant, and an hour for military exercises. The entire afternoon is devoted to laboratory and field work in which alternation and increased instructing force permits much smaller sections than heretofore—hence, more opportunity for *individual* instruction.

Coincident with changes in the courses of instruction leading to the Bachelor of Science degree comes an entire reorganization of the graduate courses. The Graduate Department is now one of the five regular departments of the Institute, with Dr. W. E. Barlow, professor of metallurgy and metallography, as its dean and head. Already the graduate degrees of Civil Engineer, Mechanical Engineer, Mining Engineer, Electrical Engineer, and Master of Science are being offered while extensive courses in agricultural and horticultural graduate work are now being prepared and will be announced in detail within a short time. A careful analysis of these courses made by several members of the faculty during the past few months reveals the very gratifying fact that the scientific and agricultural work now being carried on at the Virginia Polytechnic Institute will compare favorably in character with that of

any of the large scientific colleges in the North and West.

With the close of the session of 1908-09 in June, the V. P. I. lost three valued members of its faculty through resignation.

Professor W. D. Saunders resigned the position of professor of dairying in order to accept the position of commissioner of dairying and pure foods for the State of Virginia, a position created by the last legislature. Professor Saunders, however, will continue to be identified with the V. P. I. as superintendent of the creamery. Dr. Meade Ferguson was appointed bacteriologist for the State of Virginia. He was the first professor of bacteriology at this Institute; and, under his management, the courses in bacteriology and mycology were greatly enlarged and developed. Col. T. Gilbert Wood resigned from the position of associate professor of biology and assistant commandant of cadets. He is now professor of agriculture and botany in the Burkeville and Appomattox High Schools, and has been recently made secretary and treasurer of the Virginia Dairying Association. In addition to his professional duties, he is extensively engaged in commercial and industrial enterprises.

Though the faculty has suffered these losses, several additional professors have been appointed.

The new chair of mining engineering has been filled by the appointment of Professor O. C. Burkhart, a graduate of Lehigh University, class of 1888. After extensive practical work in mining and metallurgical operations he was called to his alma mater in 1904, to the department of mining and metallurgy. He was for some time mining engineer for the Virginia Coal & Coke Co., and is therefore familiar with mining conditions in this State. The new mining course will undoubtedly prove popular.

Professor W. K. Brainerd, recently of the West Virginia University, has been appointed professor of dairying to succeed Professor Saunders. Professor Brainerd is a graduate of Michigan Agricultural College, and since graduation has been a busy man in dairying, both professionally and practically. In addition to his broad work in this country, he has made a special study of agricultural conditions abroad. The new creamery soon to be installed in the agricultural hall will afford

him much assistance in continuing the work of instruction in this important department of agriculture which has been so efficiently planned and developed by Professor Saunders.

Much of the work left by Professors Ferguson and Wood will be carried on by Dr. Howard S. Reed, who has recently been appointed plant pathologist and physiologist on the staff of the agricultural experiment station. Dr. Reed is a graduate of the University of Michigan and received the degree of Doctor of Philosophy from the University of Missouri, in 1907. Since June, 1906, he has been a member of the laboratory force of the Bureau of Soils, U. S. Department of Agriculture. He is the author of twenty-six scientific papers, twelve of which were published during his college and university life, and the remaining fourteen since his connection with the Department of Agriculture.

At the first meeting of the faculty, which was held shortly after the opening of the session, the following working committees were appointed by President Barringer:

Bulletin—Profs. Worthington, Williams, Wilson, and Newman.

Catalogue—Profs. Williams, Worthington, and Newman,

Library—Profs. Hudnall, Campbell, and Barlow.

Degree Courses—Profs. Barlow, Smyth, Worthington, Randolph, and Williams.

Literary Societies—Profs. Hudnall, Wilson, and Newman.

Secondary Schools—Profs. Walker, Williams, Newman, and Campbell.

College Publications—Prof. Hudnall, Campbell, Abbot, and Miles.

Athletics—Profs. Pritchard, McBryde, Miles, Rasche, and Price.

Public Exercises—Profs. Wilson, Abbot, and Miles.

Cost of Living—Profs. Davidson, Spencer, Smyth, Williams, and Price.

The executive council has been abolished and its various duties assumed by the president, the commandant of cadets, the secretary of the faculty, and the different faculty committees.

The athletic interests at V. P. I. have also been benefited

by a general reorganization in the effort to put all the affairs of the athletic association upon a permanent and substantial basis. The graduate manager has been elected to hold office, not for one year alone, as has formerly been the custom, but permanently as long as he is satisfactory to the corps. Furthermore, an athletic director has been engaged who will devote his entire time throughout the session to the development of the athletic teams of the Virginia Polytechnic Institute. These two offices have been filled by the selection of Prof. C. P. Miles (02) as graduate manager and Mr. R. M. Brown, Princeton University (08), as director of athletics. Prof. Miles is too well known to readers of the Bulletin to need further introduction here; Mr. Brown comes to the Institute with a splendid athletic record and the highest recommendations from competent critics. His gentlemanly bearing and his good work with the football team have already demonstrated the fact that the new system will succeed if it is within the power of one man to make it a success. A no less important change has been made in the organization of the athletic association itself. Hitherto every student at V. P. I. has been a member of the association whether he took the slightest interest in athletics or not. This session the association is issuing for five dollars a membership ticket which entitles its owner to membership in the athletic association with all the privileges of such membership, and admits him to all events on the home athletic field. This plan, which guarantees the Association a certain income each year, seems destined to succeed in every respect. Over fifty per cent. of the students purchased membership tickets during the first month of the session.

About the buildings and grounds there have been extensive improvements since June. A concrete walk, twelve feet wide, has been laid from the dining hall to the front of barracks No. 1. In front of the latter a sixteen-foot concrete esplanade has been put down, connected with each of the other four barracks by concrete walks, so that a student can pass from any room to the assembly point, march to the dining hall and return without getting his feet wet. In all, twenty-seven hundred and thirty square yards of concrete walk have been laid on the campus this summer.

The new school of mining engineering has been installed and occupies a commodious building diagonally across from the science hall. This building is 35x85 feet, and was erected at a cost of \$2,500, exclusive of the apparatus which will be installed. In addition to recitation and drawing rooms, there will be testing laboratories containing crushers, rolls, revolving screens, jigs and concentrating apparatus for a practical study of ores.

The dining hall has been floored with hard wood and painted in white enamel. There have also been installed new Tungsten lamps whose radiance in the dark hours of winter, it is hoped, will materially add to the cheerfulness of the hall. Large cold-storage rooms, holding thirty beeves, have been built in the mess hall in connection with the new absorption ice plant now nearing completion in the power house. This will also furnish refrigeration for the ice plant at the new creamery, two cold-storage butter rooms, a milk and cheese-making room.

Students' work in the departments has been greatly facilitated by equipment that has been added since last session. The forge department has been enlarged by a brick wing, twenty new forges have been installed and a concrete floor laid. Two thousand dollars' worth of new apparatus has been added to the laboratories of electrical engineering, almost an equal amount to those of physics, chemistry and mechanical engineering. New reference volumes have been purchased for the library in the department of agriculture and new equipment for the departments of geology, biology and civil engineering. Much has also been done for the agricultural department. The barn, designed for the isolation of cattle, looking to the prevention of tuberculosis, has been completed and is in use; ground has been broken for the installation of the new poultry plant, and three separate barns have been built for the keeping of the thoroughbred bulls belonging to the college. This protection of the animals in case of fire is deemed necessary on account of their great financial value, as it is unsafe to risk them in the larger barns.

Despite the raising of the entrance requirements and the increase in expenses, five hundred and thirty-one students have

matriculated at the V. P. I. up to the time of writing. These are distributed according to courses as follows:

Agriculture.. . . .	49
Horticulture.. . . .	11
Applied Chemistry.. . . .	31
Applied Geology.. . . .	4
Metallurgy and Metallography.	2
Preparatory Vet. Medicine.. . .	9
Civil Engineering.. . . .	98
Mechanical Engineering.. . . .	75
Electrical Engineering.. . . .	149
Mining Engineering.. . . .	19
General Science.	2
Special.. . . .	4

Two hundred and fifteen freshmen are distributed thus :

Agriculture.. . . .	35
Horticulture.. . . .	7
Applied Chemistry.. . . .	9
Applied Geology.. . . .	1
Preparatory Vet. Medicine.. . .	7
Civil Engineering.. . . .	35
Mechanical Engineering.. . . .	31
Electrical Engineering.. . . .	73
Mining Engineering.. . . .	10
Unclassified.. . . .	7

In the apprentice school there are seventy students, and twenty men have returned to V. P. I., after taking the B. S. degree, to take up graduate work in their several specialties. These latter figures are particularly gratifying since the apprentice school is a radical innovation, while the graduate department is being thoroughly reorganized.

NEW MEMBERS OF THE BOARD OF VISITORS

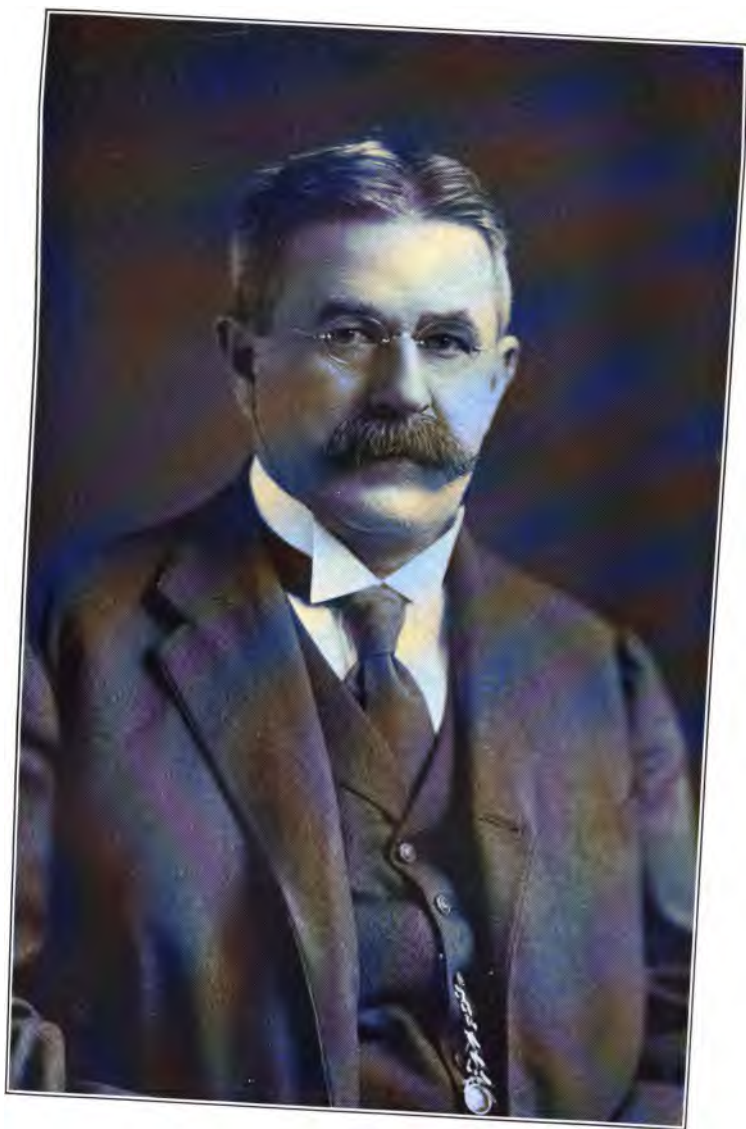
I.—L. E. JOHNSON

(Extract from Men of Mark of Virginia, Vol. I.)

Lucius E. Johnson, railroad president, was born in Aurora, Illinois, April 13, 1846, and is the son of John Spencer and Eliza Johnson. His father was a blacksmith and veterinary surgeon, the typical "village blacksmith," honest, strong and upright. Mrs. Eliza Johnson was a noble Christian woman, intelligent, shrewd, practical, and exerted a strong influence over her son both intellectually and morally.

Lucius Johnson was sent to the public free schools of his native town. There he acquired a "practical English education," as the phrase goes, and this has served him in good stead in his office work as a railroad manager and president. In boyhood and youth, Mr. Johnson was blessed with good health, due partly to playing and working and partly to the vigor of his parents. While at school, he spent some of his spare time reading history and books on mechanical subjects. He rested his mind at times by reading good novels. "Honest study, good playing, and fondness for work," he says, helps to account for his first successes.

His first strong impulse in life was the necessity of earning a livelihood. After leaving the public school of Aurora, Ill., he entered the railroad service as a brakeman. Then he served as fireman and as a locomotive engineer. In these positions, he did his duty and did it every day, and, looking back over his successful life, he finds that the secret of his success is persistent devotion to his work, and he believes that this same persistence will generally bring success. For some years, Mr. Johnson was a master mechanic at Aurora, Ill. In 1886, he was made superintendent of the St. Louis division of the Chicago, Burlington and Quincy R. R. In December, 1888, he returned to Aurora as superintendent of the Chicago division of the same road. In 1890, he was asked to take the superin-



L. E. JOHNSON

tendency of the Montana Central Railroad, with headquarters at Helena, Montana. In less than three years, he was made superintendent of the Michigan division of the Lake Shore and Michigan Southern Railroad, and in July, 1897, became general superintendent of the Norfolk and Western Railway. In two years, he was made vice-president and general manager of the whole Norfolk and Western system. On the 30th of September, 1903, Lucius E. Johnson was elected to the presidency of the Norfolk and Western Railway, a position which he is now filling with conspicuous ability.

The newspapers of October 1, 1903, in announcing Mr. Johnson's election, used their largest headlines. "Started as Fireman," said one paper, in enormous type. If they had asked Mr. Johnson to solve the mystery, he might well have said, "There is no mystery, only natural law in the moral world;" persistent devotion to his duty day by day placed him in his high position.

Commenting editorially, one of our dailies said: "A striking example of the opportunity afforded young men of ability, industry and determination, to rise in this country to the highest positions of trust and responsibility, is forcibly exhibited in the recent election of Mr. L. E. Johnson to be president of the Norfolk and Western Railway corporation." Another paper said: "In the front rank of the high railroad officials of the world must be enrolled Mr. Lucius E. Johnson, the new president of the Norfolk and Western Railway. But a few years ago he wore the greasy overalls of a locomotive fireman of the Chicago, Burlington and Quincy Railroad* * * * Mr. Johnson is amiable, just, unselfish and stern, and to these qualities, combined with his marvelous insight into human nature and his tremendous capacity for work without waste, has been due his constant advance in railroad circles."

Mr. Johnson belongs to the Masonic order, and to social clubs in Cincinnati, Roanoke and Norfolk. In these, he takes relaxation from the strenuous duties of his office. Further pleasure he derives from baseball, dogs and horses.

Mr. Johnson has patented a railway scoop-car and a signal lamp fixture, both of which are used by the railroads of the country. In political preference, Mr. Johnson is a Democrat,

what was known as "Gold Democrat," which we may say to the young reader, means that he did not endorse the doctrine of "free silver at a ratio of 16 to 1," and did not favor the election of W. J. Bryan to the presidency.

On April 10, 1869, Mr. Johnson married Miss Ella Parker. They have had five children, only two of whom are now living. He and his family reside at 204 Mountain Avenue, Roanoke, Virginia.

[EDITORS' NOTE : Sketches of Messrs. Noell and Kline will appear in a later issue of the *Bulletin*.]

OUR NEW PROFESSORS

DR. S. W. FLETCHER, Director of the Experiment Station
and Professor of Experimental Agriculture.

Dr. Fletcher was born in 1875, at Littlefield, Mass. He was graduated from the Massachusetts Agricultural College in 1896 with the degree of B. S. in the course of horticulture. He subsequently received the degrees of M. S. and Ph. D. from Cornell University with horticulture as his main subject. Among his published writings are : "Soils," and "How to Make a Fruit Garden."

He was appointed assistant professor of horticulture at the Massachusetts Agricultural College immediately after taking his B. S. From this institution, he was called to Cornell as assistant professor of horticulture; from Cornell to the Washington State University; from Washington to the West Virginia University; from West Virginia to the Michigan Agricultural College, whence he was called to his present position.

Dr. Fletcher is one of the few horticulturists who are directors of Agricultural Experiment Stations of the United States. The fundamental principles of horticulture and agriculture are the same, however, and a man versed in one necessarily knows the needs of the other.

It is a maxim of a famous engineering company that one test is worth the opinions of a thousand experts. Experiments

in the biological world are as necessary as in the engineering world, and are perhaps more difficult to perform, and, especially, to interpret. The necessities, in either case, for efficient research are knowledge of general and local conditions, acquaintance with work already done, a thorough familiarity with best methods, and a happy faculty of mind for observing Nature sympathetically and determining what new line of attack will best unmask strategic points. Dr. Fletcher's training in one of the leading universities of the country, combined with experience as an educator in many fields, makes him especially fitted for meeting the responsibilities of the important office he now holds.

LYMAN CARRIER, Professor of Agronomy.

Professor Carrier was born in 1877 at Duffield, Michigan. His early practical life on the farm was an important element in his youthful training for his later work. He was graduated from the Pottersville High School in 1897. After teaching in the public schools one year, he entered the Michigan Agricultural College, whence he graduated in 1902, with the degree of B. S. in agriculture. While at this institution, he represented the college in a student judging contest at the International Live Stock Show at Chicago, and here won a prize. He was identified with the various forms of college life, such as student literary work, athletics, etc. After graduation, he pursued special lines of work for the Michigan Agricultural Experiment Station. The following year, he taught science and agriculture in the City High School at Elyria, Ohio from which place he was called to a similar position in Union Academy, Belville, N. Y. In July, 1905, he was appointed scientific assistant in agronomy in the U. S. Department of Agriculture, which position he held until his appointment to the professorship of agronomy at the V. P. I. While in the Department of Agriculture, he wrote Farmers' Bulletins, Numbers 280 and 292, entitled, respectively, "Profitable Tenant Dairy Farm," and "Cost of Silo Filling."

Prof. Carrier is well equipped for his work and has, even

in so short a time, given every evidence of ability for handling that important branch of agriculture which so vitally concerns our State and country.

OTTO C. BURKHART, Professor of Mining Engineering.

Prof. Burkhardt was born at Bethlehem, Pennsylvania, in 1867. He was prepared for college at the Moravian Parochial School of his native town and was graduated from Lehigh University in 1888, receiving the degree of B. S. in mining and metallurgy. The following year was spent in pursuing post-graduate work at the same institution, whence he received the degree of E. M. in 1889. After two years of practical work in the anthracite coal fields of Pennsylvania, he returned to Lehigh to work for his degree of Civil Engineer, which degree he received in 1892.

In the summer of 1892 he was appointed principal of the Correspondence School of Mines, then just organized, but which has since developed into the International Correspondence School. The work there consisted of writing text-books and formulating courses of study in mining, geology, assaying, blowpipe analysis, and surveying. In 1896, he went to New York City as associate editor of the Engineering and Mining Journal; in 1897, was made mining engineer and assistant superintendent for the Virginia Coal & Coke Company, at Gayton, Virginia. From Gayton, he went to Steelton, Pennsylvania, as superintendent of blast furnaces for the Pennsylvania Steel Company, and continued there for five years. In the spring of 1903, he accepted a position with the Suburban Gas Company, at Chester, Pennsylvania, a plant of Semet-Solvay by-product coke ovens. The following year, he was called to Lehigh University to the department of mineralogy and metallurgy, where he remained until elected to the chair of mining engineering at the V. P. I.

The department of Mining Engineering was established primarily for the purpose of equipping young men as engineers for the mines of Virginia, so that the vast mineral resources

of the State might be more intelligently developed. The V. P. I. may, therefore, consider itself fortunate in securing, as the incumbent of the chair of mining engineering, a man who has been in touch with the mining industries in Virginia especially, and who has also had such broad experience elsewhere.

W. K. BRAINERD, Professor of Dairying.

Prof. Brainerd was born at Brady, Saginaw County, Michigan, in 1873. His boyhood days were spent on the farm. He was graduated from the Chesaning High and Preparatory School in June, 1894, and taught in the public schools of Michigan for two years; he then entered the Michigan Agricultural College in the fall of 1896; was graduated from the same, with the degree of B. S., in 1899. After three months of practical work in the college creamery, he accepted a position as manager of the Waldo Farms at Cross River, N. Y., remaining there for one year. He then established a retail milk dairy in the city of Wilmington, Delaware. In 1901, he accepted a position as instructor in Dairying and Director of Creamery in the Baron de Hirsch School at Woodbine, New Jersey; in 1902, was appointed professor of agriculture and mathematics in Leland University, New Orleans. He was appointed instructor in dairying at the West Virginia University in 1903.

While in West Virginia, he established the dairy department and organized the West Virginia State Dairy Association. He has been secretary-treasurer of this association since its organization as well as secretary-treasurer of the Allied Agricultural Societies of West Virginia since their union in 1905. In addition to his regular college work, he has instructed from one to six weeks each year in the Farmers' Institutes of West Virginia, and has organized and conducted several short dairy schools in the State. During the year 1906, he was given six months' leave of absence, which time was spent abroad in studying agricultural conditions in Great Britain, the Channel Islands, and France. While abroad, he

represented the "Ohio Farmer" as special writer, and contributed a series of valuable articles on European agriculture. He is a writer for numerous agricultural journals of this country.

Prof. Brainerd served his country in the Spanish-American War. He was a star football player while a student at the Michigan Agricultural College, and took a lively interest in student life generally.

The new dairying establishment, which is soon to be installed in the V. P. I. agricultural hall, will, under the direction and control of Prof. Brainerd, afford excellent opportunities to the agriculturists of Virginia.

HOWARD S. REED, Plant Pathologist and Physiologist.

Dr. Reed was born at North East, Pa., in 1876, and was graduated from the high school of his native village in 1895. After three years of teaching in the public schools, he entered the University of Michigan, in the fall of 1898. In 1899, he was appointed an assistant in botany in that institution, and held the position until 1903. During the summer of 1900, he had charge of the University Botanical Gardens and during the summer of 1902 attended the Marine Biological Laboratory at Wood's Hole, Mass. He was graduated from the University of Michigan in 1903 with the degree of Bachelor of Arts. The following year, he entered upon his duties as inspector in botany at the University of Missouri, where he remained until 1906. During the academic year 1905-06, he was acting professor of botany in the absence of Prof. B. M. Duggar. From June, 1906, until the present time, he has been a member of the laboratory force in the Bureau of Soils of the U. S. Department of Agriculture.

While at the University of Missouri, Dr. Reed was engaged upon original research investigations on the nutrition and chemical physiology of plants. In the Bureau of Soils, he has been engaged in further researches along the same line, devoting especial attention to the effect of nutrient and toxic

substances upon plants. In the course of this work he has published several papers, the titles of which are given herewith.

He received the degree of Doctor of Philosophy from the University of Missouri in 1907. He is a member of The American Chemical Society; The American Association for the Advancement of Science; The American Microscopical Society; The Washington Botanical Society; and the Honorary Society of "Sigma Xi."

The following is a list of his writings :

1. An abnormal wave in Lake Erie.
2. A meteorological hypothesis of the cause of the glacial epoch.
3. The ecology of a glacial lake.
4. A damp chamber for use on the Klinostat.
5. Plant preparations for museums and general demonstration work.
6. A botanical survey of the Huron Valley. (1) The ecology of glacial lake.
7. Methods in plant physiology—a series of articles in the Journal of Applied Microscopy.
8. The development of the macrosporangium in *Yucca filamentosa*.
9. A study of the euzyne secreting cells in *Zea Moiss* and *Phoenix dactylifera*.
10. The planting and care of shade trees.
11. A brief history of ecological work in botany.
12. Three fungous diseases of the cultivated ginseng.
13. Reviews in American Nature.
14. Mechanism of seed dispersal in *Polygonum Virginianum* (with Isadore Smoot).
15. The Parasitism of *Neocosmospora*.
16. The stimulation of plant growth by weak poisons.
17. The relation of extractive to protein phosphorous in *Aspergillus niger*.
18. Some factors influencing soil fertility.
19. The production of deleterious excretions by roots.
20. The Parasitism of *Neocosmospora*. A reply.

21. The value of certain nutritive elements to the plant cell.
22. Certain organic constituents of soils in relation to soil fertility.
23. The malignant effect of certain trees upon surrounding plants.
24. The power of sodium nitrate and calcium carbonate to decrease toxicity in conjunction with plants growing in solution cultures (with O. Schreiner).
25. The toxic action of certain organic plant constituents (with O. Schreiner).
26. Modern and early ideas upon the subject of root excretions.

On account of the breadth of his training and the nature of his research work, Dr. Reed should prove a valuable addition to the already efficient staff of our Agricultural Experiment Station.

EARLY HISTORY OF V. P. I.

(From an old Gray Jacket.)

Blacksburg ! V. A. & M. C. ! What memories these words revive !

Across the gulf of the years I can hear, almost, the inspiring rat-tat of the drum and the clear, sweet call of the bugle. For the time referred to was early in the seventies when youth, ambition and hope sent the blood through the veins like fire.

I shall never forget my first view of the old town and college. It was on a raw, cold day in February, and after having been jolted and beaten and hammered for more than three hours in what by courtesy was called a hack, we came to the top of a rise in the road, and looking down the long street, and over the roofs of the low, unpainted houses, I caught my first glimpse of the one building that constituted



V. P. I. IN OLDEN DAYS

the Virginia A. & M. College. This was the old Preston and Olin Institute, and the architect who planned it must have been a genius, for it was classic in its ugliness. While it was doubtless meant to face the town it always gave me the impression that for some reason the building had become offended at the village and had deliberately turned its back upon it; and who could blame it? For, looking to the north there is a scene of such ravishing beauty that it would seem that even insensate brick and mortar would be touched by it. Rolling away to the very furthest limit of the vision, range after range of the Alleghanies, verdure-crowned to their summits, rise higher and higher, till imperceptibly their deep green melts into the blue of the heavens. And yet,—and yet, rising above them all, like a giant among his fellows Bald Knob lifts his bared head as if in silent worship, keeping his eternal vigil over Mountain Lake, that marvellous jewel that sleeps in beauty at his feet.

Of course, at this early period of its history, this institution was looked upon at best as an experiment; and the Commonwealth, impoverished by the war, and burdened by an enormous debt, could give but little from its almost empty coffers for needed improvements. And yet in the face of these difficulties, hampered by poverty, confronted with the problem of creating a system of education unknown and untried in the South, the first faculty set itself to the task with such grim courage and ability that the results achieved were beyond the expectations of the most sanguine.

The first building erected, excepting a residence, was a long, rough, two-story wooden structure, just in the rear of the old barracks, the first floor of which was utilized as the shops, while the second was cut up into cuddy holes, intended as rooms for the boys. Some would-be wag christened it "Dutch Alley," and painted a skull and cross-bones on its gable. Somehow these rooms always had an unsavory reputation, and if you had gone with me, on some sultry summer night after the lights were out, into the hall, you would have known the reason, and you would have seen the significance of the raw head and picked bones. Jack Ward swore he had one roommate and a thousand bed-fellows. At first, you would hear

some restless, nervous fellow kicking the wall and swearing softly; then from adjoining rooms a vicious beating of pillows and a few choice, full-blown oaths; then lights would begin to twinkle, and when the whole gang, headed by the president of the Y. M. C. A. and the two boys who led the singing at the prayer meeting, became thoroughly interested, the "swearing of the army in Flanders" was but as the chanting of psalms beside it.

The next year saw a handsome and commodious new barracks crowning the hill to the southwest of the old building. Previous to this time, we had roomed and boarded in the town wherever the good people could be induced to take us. There were the Amiss House, the Hawleys', the Lybrooks', the Caldwells,' and others. How the hearts of old students will throb with recollection of the many acts of kindness, long suffering and patience of these good people among whom we made our homes.

The first faculty was as follows : Dr. C. L. C. Minor was president. He was a man of commanding presence, possessed of a magnificent intellectual attainment and of an energy that was untiring. He could talk faster than any man I have ever known, and could call the roll and read the morning prayers in the chapel before the boys could realize that the service had begun. He had an office made of glass cut off in one corner of the chapel. It was intimated that he had eyes on all four sides of his head, and woe to the boy "fatally bent on mischief" who imagined he could escape detection.

Gen. James H. Lane was commandant, and professor of physics. He was better known as "Old Baldy" and "Game Cock Lane." He had won the latter title in cadet days at the V. M. I., and had fully sustained it as brigadier-general through four years of service in the Confederate army. He now holds a prominent professorship in the Georgia School of Technology and has enough letters after his name to start a junior alphabet.

Prof. Charles Martin taught English and Latin. In the size of his girth and his love of humor, he was a second Jack Falstaff. He would tell anecdotes for a month and then pitch the whole text-book at the heads of unsuspecting students at

the next examination. When a boy got a card that entitled him to admission to the faculty room, he knew that in Dr. Martin he would have a strong advocate and a merciful judge. He has long since passed over the great divide and but few of the old students but will have of him some tender memory of kindly deed or loving service.

Gray Carroll was professor of mathematics and, incidentally, of good manners. In his bearing, quiet dignity, unfailing patience, and courtesy, I found the most perfect, and the gentlest gentleman I have ever known, and withal a thorough mathematician and a man of broad and liberal culture.

Dr. Ellzey lectured on agriculture and chemistry. In the class-room he was perhaps the most brilliant lecturer in the faculty, but outside he was taciturn and moody, never using a word where a nod would answer.

But the most silent man of all was Prof. V. E. Shepherd, who taught modern languages, and was secretary of the faculty. There were two legends in regard to him : one, that he had been Jeff Davis's private secretary ; the other, that he had been seen to smile on one occasion. The former was generally believed ; the latter having been vouched for by Maurice, the present popular mayor of Manchester, never received the credit to which the well-known truthfulness of the witty author justly entitled it.

But this is already too long ; besides it is growing late and in my dreams I am a college boy again. Once more I hear, softened by distance and the summer night, what to me are the sweetest, most weird, and yet the saddest bars of music ever written—at the farthest limit of the parade ground the bugler is sounding "Taps." "Lights out,—lights out. Farewell ! GOOD-BYE !"

THE VIRGINIA POLYTECHNIC INSTITUTE 1891-1905

BY G. C. STONE ('06).

In the spring of 1891, the Board of Visitors of the Virginia Polytechnic Institute decided on a reorganization of the college. General L. L. Lomax, President, tendered his resignation to the Board on April 7th of this year, while it was in session in Richmond. The resignation was accepted, and the chairs of Biology, English, Book-keeping and Commercial law were declared vacant, and they remained vacant until the Board met again in June. Prof. Christian was acting president from this meeting until July.

On May 7th, 1891, J. M. McBryde, Ph. D., LL. D., President of the University of South Carolina, and a distinguished educator, was unanimously elected President of the College and Director of the Station. Dr. McBryde, however, did not assume charge of the Institute until the following July, at which time he presented to the Board a report embodying his views as to the needs of the college, and giving in detail his plan for a thorough reorganization of the courses of study. Of the old faculty, the following men were re-elected: Professors J. E. Christian, A. M.; J. H. Fitts; T. P. Campbell, A. M.; R. C. Price; W. C. Anderson; J. A. Harmon; R. T. Bray, M. E. ('89); and W. N. Cunningham. The following new men were appointed members of the faculty: E. E. Sheib, Ph. D.; E. A. Smyth, A. M.; and R. J. Davidson, A. M.; all from the University of South Carolina; also W. B. Alwood; D. O. Nourse, B. S., of the Station; E. P. Niles, D. V. M. of Iowa; and W. W. Hurt ('91). New departments were organized, and old ones reorganized as follows: Agricultural Chemistry (President McBryde); Mathematics and Civil Engineering (Prof. Christian, Assistant Prof. Harman, Instructor Hurt); Mechanical Engineering (Prof. Fitts); Horticulture, Entomology, and Mycology (Prof. Alwood); English, History, and Political Economy (Dr. Sheib); Biology (Prof. Smyth); Mod-

ern Languages (Adjunct Prof. Campbell); Electrical Engineering and Physics (Adjunct Prof. Anderson); General Chemistry, Geology and Mineralogy (Adjunct Prof. Price); Agriculture (Adjunct Prof. Nourse); Analytic Chemistry (Adjunct Prof. Davidson); Vet. Science (Adjunct Prof. Niles); Wood Work (Instructor Bray); Iron Work (Instructor Cunningham); Bookkeeping (Mr. Hurt). Mr. W. W. Hurt ('91) was also appointed Secretary of the Faculty; Mr. A. W. Drinkard ('93) was made Librarian; and Mr. G. W. Fleet became College Marshall. Lieut. D. C. Shanks, U. S. A., was detailed by the War Department to serve as Commandant of Cadets, and to give instructions in Military Science and Tactics.

In the session of 1891-'92, seven courses of instruction were offered, each leading to the degree of Bachelor of Science in four years. These were courses in Agriculture, Horticulture, Applied Chemistry, General Science, Civil Engineering, Mechanical Engineering, and Electrical Engineering. Besides these, certificates were given in Practical Mechanics and Practical Agriculture, courses of two years each. Also post-graduate courses were offered leading to the degrees of M. S., C. E., M. E., and E. E.

Several changes were made during this year in regard to the buildings and campus. The mess was removed from the basement of the First Academic Building to the wooden building which had been used before as a machine shop. The lecture rooms were fitted up with new benches and tables. The Effinger house and lot, adjoining the north-east corner of the campus, was purchased and added to the college grounds, and the house was fitted up for use as an Infirmary. Painter's Spring, near Col. Palmer's residence, was purchased, also, and furnished the water supply for the shops.

Up to this time, the cadet uniform had been of gray throughout, the blouse being buttoned with brass buttons. This session, however, the uniform was changed so as to consist of a dark blue blouse, made to fit closely and without brass buttons, a dark blue cap of chasseur pattern with cross-guns and college initials, and trousers of cadet gray with black stripes. The coatee which had been used on dress occasions was discarded. The class of '92 was the first to

adopt a senior uniform. This differed from the under-classman's uniform in having the regulation U. S. A. cap, blouse trimmed with braid and with cross-guns and college initials on the collar, and trousers of dark blue with white stripe.

The publication of the Gray Jacket had been discontinued since 1889, but now it began a new life with T. G. Lewton, Editor-in-Chief, and F. D. Wilson, Business Manager. The catalogue for this year, the first one published under Dr. McBryde's administration, showed an attendance of one hundred and sixteen students.

On June 17th, the corps of cadets, consisting of two companies of infantry with thirty men each, under the charge of Col. Harman, attended the Decennial Celebration of Roanoke City. This was the first trip ever made by the corps as a military organization; that it was a decided success and enjoyed by all is well attested by the number and frequency of the trips made since that time.

In June, Adjunct Professor R. C. Price's department was divided. The chair of General Chemistry was made a separate and distinct one with Adjunct Professor Price at its head, while T. L. Watson ('90), Ph. D. from Cornell, was appointed Instructor in Geology and Mineralogy. Mr. C. G. Porter ('92) was made Instructor in Forge Work at the same time.

An appropriation of \$3,750.00 was made by the Legislature for new buildings for the College. This money was used to complete and partially equip the Veterinary Infirmary, a wooden building of nine rooms, and the Forge and Foundry Building, a one-story brick structure, which was built near the main shops.

In October, 1892, several important changes were made in the military organization of the corps. A band of sixteen pieces, composed entirely of cadets, was organized with Cadet Clifford Anderson as leader. This was the first band in the history of the college; since that time, however, the band has been a permanent organization in the corps. About the same time, the Signal Corps and Company C were organized. The Signal Corps was composed of senior classmen and remained a permanent institution until June, 1905, when it was discontinued. Company C was organized on account

of the increase in the number of students and was first commanded by Captain E. P. Miner. Cadet R. E. Wright was appointed Assistant Commandant, a new office created this session, and he was given the rank of major.

During this fall, the first football team in the history of the college was organized, with Prof. Anderson as captain. The first game was played at Blacksburg, against St. Albans, and resulted in a score of 14 to 10 in favor of Virginia Agricultural and Mechanical College.

The attendance for this session was one hundred and seventy-seven; on account of the increase in the number of students the mess was removed from the old machine shop to the large wooden building known as the Pavilion, which had formerly served as a commencement hall; the Pavilion was therefore used for a double purpose this session.

The corps of cadets, consisting of three companies of infantry and the band, left on April 17th to attend the naval rendezvous in the harbor at Norfolk. Our picked company, commanded by Capt. A. T. Finch ('93) entered the competitive drill on April 19th against a company from the Virginia Military Institute and one from the Washington High School. Our company was adjudged the winner and carried off the prize of \$250.00 which had been offered to the best drilled company. With this money, Col. Harmon purchased during the next summer two three-inch rifles, which, with the two furnished by the government, were to be used by the battery of light artillery organized the following session. A powder magazine was built in April, which was used for storing the increased amount of powder and ammunition furnished to the college by the War Department.

Commencement was held in the old Pavilion, and many changes and promotions in the faculty were announced. Adjunct Professors T. P. Campbell, R. C. Price, D. O. Nourse, R. J. Davidson, and E. P. Niles were made full Professors. Col. J. A. Harmon was made Acting Professor of Mathematics. Mr. W. E. Anderson resigned his position as Adjunct Professor of Electricity and Physics and Superintendent of the Shops. Mr. W. N. Cunningham and Mr. R. T. Bray resigned the instructorships in Machine Work and Wood Work,

respectively; and Messrs. P. C. Hubbard and J. R. Parrott ('80-'82) were appointed to fill these vacancies. Mr. A. W. Drinkard ('93) resigned as Librarian and Mr. T. G. Lewton ('93) was appointed in his place. Mr. J. P. Harvey, of Blacksburg, Va., was appointed Musical Director, with the rank of major.

During the summer of 1893, a combined creamery and cheese-factory was erected out of the proceeds of farm crops, and put under the management of Prof. Nourse. In August, Mr. S. R. Pritchard, A. M., of Wofford College, S. C., was appointed Adjunct Professor of Electrical Engineering and Physics. Upon the recommendation of the President, the Board of Visitors established fellowships to be filled by graduates of the college who wished to take post-graduate courses. The holders of these fellowships were to act as assistants, devoting a certain amount of time to teaching, while pursuing graduate work in the various departments. The following graduates of the class of '93 were appointed to the fellowships: Mr. A. W. Drinkard, Assistant in English; Mr. J. W. Stull, Mathematics; Mr. R. E. Wright, Mechanical Engineering; and Mr. W. O. Frith, Horticulture.

During the summer, while en route to the Chicago Exposition, Prof. J. H. Fitts of the Department of Mechanical Engineering was killed in a railroad accident near Welch, W. Va. Prof. Fitts had been connected with the college for eight years. He was a man of exceptional abilities and was held in high esteem by both the student body and the faculty. Mr. L. S. Randolph, M. E., of Baltimore, Md., was appointed Prof. Fitts' successor in the Department of Mechanical Engineering.

Quite an addition was made to the Military Department during the session of 1903-4 by the organization of the Battery, Capt. A. H. Apperson ('94) commanding, for which provision had been made the previous session by acquiring the four rifles for its equipment. A gun-shed was made underneath the old Pavilion, then used for a dining hall. About the same time, the old machine shop, which had been used as a mess, was fitted up for a laundry under the supervision of Mr. D. O. Matthews ('83-'87).

The Pittsylvania Club, the first organization of its kind in the history of the school, was organized about the first of October, 1893, through the efforts of Cadets F. D. Wilson, C. Lee, and J. C. Dabney. The object of this club was to bring the cadets from Pittsylvania County into closer relationship with one another, and to assist in promoting the welfare of the new men from Pittsylvania. It was also desired to advertise the school more among the people of that county so as to increase the representation at the college. A constitution was drawn up for the present and future guidance of the club, and all meetings and transactions were conducted according to parliamentary rules.

Cadets from other places followed the example of the Pittsylvania Club until, in the course of time, almost every county of Virginia, and every other State from which there were students, had an organized representation in the college.

On the 18th of October the college suffered a severe loss in the death of Prof. J. E. Christian, who had so ably filled the chair of Mathematics. He was the senior member of the faculty, having been connected with the college since 1880. He was admired and beloved by the students, and his death was a great blow to all.

The corps of cadets, consisting of three companies of infantry, the battery, and the band, two hundred and thirty-six men in all, left college on the twenty-ninth of the following May to attend the unveiling of the Soldiers' and Sailors Monument in Richmond, Va. The battalion remained in Richmond until June 2nd and was quartered in Camp McBryde near the Lee Monument. In the parade on May 30th, the cadets acted as escort to Governor Chas. T. O'Ferral. The band, accompanied by a large number of other cadets, serenaded the Governor on the night of the 31st, and all were most cordially received. The next afternoon, the Governor reviewed the battalion in Capitol Square.

In June, S. M. Barton, Ph. D., of Winchester, Va., was appointed Adjunct Professor of Mathematics and Civil Engineering. The following graduates of the class of '94 were appointed to fellowships and other positions in the college: Mr. F. D. Wilson, Assistant in Chemistry; Mr. R. P. Whittle,

Electrical Engineering; Mr. J. F. Strauss, Horticulture; Messrs. S. V. Lovenstein, A. T. Eskridge, and W. B. Ellett, Assistant Chemists to the Station; Mr. T. G. Lewton, Librarian; and Mr. A. H. Apperson, Superintendent of the Electric Light Plant.

During the summer, the land to the right of the road leading to the Experiment Station was levelled up, a boulevard was constructed from the old chestnut tree to the Experiment Station house, and preparations were made for building a row of houses for the faculty nearby and facing this boulevard. About the same time, excavations were made and the floors of the two basement rooms of the Second Academic Building were lowered. These rooms were then fitted up for lecture rooms, which were very badly needed.

The building known as the New Barracks, or Barracks No. 2, was completed in September, 1904. This was a four-story, brick building with fifty-six rooms, and almost doubled the dormitory accommodation of the college. Later in the spring the large two-story brick building with a mess hall on the first floor and a commencement hall on the second, was completed. This Hall met a pressing demand; for it provided suitable and separate places for the dining hall and the auditorium, whereas up to this time, the old Pavilion had answered for both. However, the mess was not removed to the new quarters until the following September. Both the Mess Hall and the Barracks were erected out of the appropriation of \$24,000.00 secured from the Legislature of 1894. During the session, six brick houses for the professors were built along the boulevard, facing toward the south, and forming what is known as Faculty Row.

The first football game with the Virginia Military Institute was played at Staunton on November 28, 1894, with a score of 10 to 6 in favor of the Virginia Military Institute. Since that time, the teams of the two schools have played nearly every year, with varying results, sometimes one and then the other winning.

Owing to the increased number of students this year, ('94-'95), Company D was organized with Capt. J. B. Carper commanding. This made now a total of four infantry com-

panies, battery and band. The battery was still further equipped this year by the purchase of forty sabres, mainly through the efforts of the cadets, aided by the college. After this the drill for the battery included that of dismounted cavalry, as well as that of artillery.

The first annual hand-book of the Young Men's Christian Association was issued in the fall of 1895. The Association had quarters of its own and devoted much effort to looking after and caring for the new boys when they came to the college. The first issue of "The Bugle" also appeared at the end of this session. "The Bugle" is the college annual, published by the senior class, and the book issued that year speaks well for those who constituted the Bugle Board, of whom J. C. Dabney ('95) was Editor-in-Chief and C. J. Richardson ('95), Business Manager. Since that time, no senior class has ever failed to publish an annual.

The commencement exercises this session were held in the new Auditorium for the first time. Judge John Gardner, who had served the college a number of years as Treasurer, had died on December 7th, and Mr. Chas. I. Wade, of Christiansburg, Va., was appointed his successor. Adjunct Professor Pritchard was now made a full Professor, and Instructor Hurt, an Assistant Professor. The new men added to the faculty were Mr. W. D. Saunders, of Franklin County, Va., Superintendent of the Creamery and Assistant Professor of Dairy Husbandry; Mr. W. G. Conner ('92), Instructor in Wood Work; Mr. J. M. Johnson, a graduate of Miller School, Instructor in Forge and Foundry Work, to succeed Mr. C. G. Porcher, who resigned during the spring; Mr. A. T. Eskridge ('94), Instructor in Geology to succeed Mr. T. L. Watson, resigned; Mr. W. H. Rasche, a graduate of Miller School, Assistant in Drawing; Mr. L. W. Jerrell ('94), Assistant in Wood Work. The members of the class of '95 appointed to fellowships and other positions in the college were: Mr. W. E. Dodd, History; Mr. R. I. Roop, Mathematics; Mr. G. T. Surface, Modern Languages; Mr. C. A. Wheeler, Mechanical Engineering; Mr. J. W. Sample, Chemistry; Mr. W. A. Perry, Librarian; and Mr. R. C. Stuart was put in charge of the Steam Heating Department. After the

resignation of Dr. S. M. Barton, in August, the chair of Mathematics and Civil Engineering was divided. Col. W. M. Patton, C. E., of Lexington, Va. an engineer of reputation and ability, was elected to the chair of Civil Engineering. Col. D. C. Shanks, who had been appointed Commandant of Cadets the preceding year, was made Acting Professor of Mathematics.

Several measures of considerable importance to the school were enacted by the Legislature during the winter 1895-'96. By one of these acts, the name of the school was changed from the "Virginia Agricultural and Mechanical College" to the "Virginia Agricultural and Mechanical College and Polytechnic Institute." From this time on, it was commonly known as the "Virginia Polytechnic Institute," and is now generally spoken of as the "V. P. I." The Legislature also allowed the Institute an annual appropriation of \$15,000 for two years, and authorized the Board of Visitors to issue bonds to the amount of \$15,000.00 in order to secure money for the erection of new water works. Accordingly, the Board of Visitors purchased fifty acres of land from the Houston estate, together with the magnificent supply of water contained thereon. Another act of the Legislature gave to the Station full power to regulate and enforce the quarantining of cattle; while still another act conferred upon the Station all necessary powers for the extermination of insects injurious to fruit culture. Dr. E. P. Niles and Prof. W. B. Alwood were appointed to the offices of State Veterinarian and State Entomologist, respectively, with the power to enforce their regulations.

The total attendance for this session was three hundred and thirty-six. Fourteen days were added to the Christmas holidays that the session might be extended in order to enable the corps of cadets to attend the Confederate Reunion in Richmond the latter part of June. The commencement exercises closed on the nineteenth of June, and the cadets who expected to accompany the corps on this trip remained on the grounds until the following Monday. On the morning of the 24th, the battalion, consisting of four companies of infantry, the battery, band and staff, boarded the train at Christians-

burg at 6:00 A. M. They arrived at Richmond about 6:00 P. M. of the same day, and were escorted by one of the militia companies to their camp near the Soldiers' Home. The battalion gave exhibition drills and parades, which were enjoyed by the large crowds that witnessed them. These exhibitions were very highly complimented, but the attractive feature of the trip was the sham battle, which was especially enjoyed by the veterans. On Thursday, the corps was assigned a prominent position in the great parade incident to the laying of the corner-stone of the Jefferson Davis Monument. The cadet band was especially honored on this occasion by a request to furnish music during a part of the exercises. This the band did, with a great deal of credit to itself. This afternoon, after the parade, Col. Shanks officially announced the close of the session of 1895-'96, the battalion was disbanded, and the cadets returned to their homes.

Changes in the faculty were made in June as follows : Instructor Parrott was made Assistant Professor; Assistants A. W. Drinkard ('93), J. W. Stull ('93), F. D. Wilson ('94), and L. W. Jerrell ('95), were made Instructors. Mr. F. S. Roop ('97), D. V. M., was made Instructor in Veterinary Science; and Mr. C. G. Guignard ('95), Assistant in Machine Work. The following members of the class of ('96) were appointed to fellowships : Mr. F. P. Turner, Mathematics and Assistant Commandant; Mr. R. R. Lewis, Physics; Mr. C. Lee, Electrical Engineering; Mr. W. M. Scott, Horticulture. Dr. Kent Black, one of the Institute physicians, tendered his resignation.

The session of 1896-'97 passed rapidly and with few events of note. Mr. F. D. Wilson ('94), resigned his Instructorship in Chemistry in October, and Mr. W. B. Ellett was appointed to fill the vacancy. The new system of water works was completed during the spring; it included a storage reservoir of fifty thousand gallons capacity situated on the hill south of the campus with an elevation of one hundred and fifty feet above the parade ground. In June, Assistant W. H. Rasche was made Instructor, and Mr. R. C. Stuart appointed Assistant in Machine Work. Mr. C. E. Hardy ('97) was appointed to the fellowship in Physics, and Mr. H. H. Hurt

to the fellowship in French and History. Mr. E. V. Jones, Jr., ('97) was appointed Librarian to succeed Mr. W. A. Perry, who resigned. The attendance for this session was the same as for the last, three hundred and thirty-six.

The first issue of "The Cohee" appeared December 3, 1897. This paper was a weekly, published under the auspices of the General Athletic Association, for the purpose of increasing and broadening the interests of the corps in athletics. Mr. S. H. Sheib was made Editor-in-Chief, and the paper was published until June 22nd, when it was discontinued. A wooden building of one story was erected just behind the Creamery and equipped with hydraulic machinery for the making of cider and with vats and tanks for storing it. This building was assigned to the Horticultural Department for the canning and preserving of fruits and vegetables.

Rev. Geo. T. Gray, senior chaplain for the Institute, died on the twenty-ninth of October and was buried with military honors. Col. D. C. Shanks, who had been Commandant of Cadets for four years, was removed in June by the War Department. Colonel Shanks had been an excellent Commandant and, by his energetic efforts, the Military Department of the Institute was brought up to a higher standard than ever before. An attempt was made to retain him by appealing to the Secretary of War, but his regiment was ordered to Cuba and he was obliged to accompany it. Mr. A. T. Finch, M. D., ('92) was appointed Commandant and also Assistant Professor of Physiology and Materia Medica.

Dr. F. S. Roop resigned as Instructor in Veterinary Science, and Mr. C. M. McCulloch, D. V. S., M. D., of Howardsville, Va., was appointed Assistant Professor of Veterinary Science and State Veterinarian. Assistant Professor Parrott was made Adjunct Professor, and Mr. P. A. Hobday ('98) was appointed Librarian. Mr. F. C. Carper was made Musical Director to succeed Mr. J. P. Harvey, who resigned. Mr. J. S. A. Johnson secured a fellowship in Drawing and was appointed Assistant Commandant; Mr. M. Ferguson, in Mathematics; and Mr. H. L. Price, Horticulture,—all graduates of 1898.

In July, Mr. D. O. Matthews ('82-'87) was appointed Marshal of the Institute and given the supervision of the Institute



HOSPITAL

grounds. In August, Dr. E. E. Sheib and Assistant Prof. Hurt resigned; and R. H. Hudnall, M. A., Ph. D., of Brandon, Miss., succeeded Dr. Sheib as Professor of English. Mr. G. W. Walker, A. M., was appointed Assistant Professor of Mathematics, English, and Latin. Physics was detached from the Department of Electrical Engineering and Mr. C. E. Vawter, Jr., B. S. of Crozet, Va., was appointed Acting Professor of Mathematics and Physics. Mr. A. W. Drinkard ('93) was made Secretary of the Faculty.

During this summer, a refrigerating plant with a capacity of one ton of ice or two tons of refrigeration *per diem* was erected. This much needed improvement made the Institute independent of ice-harvests, and, with the cold storage room attached, enabled meats to be kept for any length of time.

The attendance for 1898-'99 was three hundred and three, less than that of the preceding session by thirty. Capt. C. E. Vawter, the able and honored Rector of the Board of Visitors, resigned after having rendered fourteen years of the most valuable service to the College. The Hon. J. Thompson Brown, of Bedford County, was appointed to fill the vacancy. Acting Prof. C. E. Vawter was made Professor of Mathematics and Physics; and Assistants J. S. A. Johnson ('98) and H. L. Price ('98) were made instructors. Mr. J. L. Phillips ('97) was appointed Instructor in Entomology, and Mr. P. C. Moulton, Assistant in Machine Work. Fellows from the class of '99 were appointed as follows: Mr. J. E. Bonsack, Mathematics and Chemistry; Mr. W. F. Bell, Mechanical Engineering; Mr. B. S. Johnson, Wood Work. Mr. C. L. Allen ('99) was made Librarian to succeed Mr. P. A. Hobday, resigned; and Mr. C. D. Taliaferro became Secretary to the President.

In September, 1899, the offices of the President, Commandant, and Treasurer were moved from the First Academic Building to the "Rock House," formerly occupied as a residence by Prof. J. A. Norton, and subsequently by Prof. Alwood. This Rock House was destroyed by fire in February, 1900, after which the executive offices were removed to the house formerly occupied by Prof. Christian, and later by the commandants. The Legislature this winter authorized the issue of one hundred thousand dollars in bonds to secure money for buildings and

equipment. The out-buildings and fences of Prof. Christian's old residence were removed, and the grounds thrown into the campus during the following spring. The Virginia Polytechnic Society was organized in October, 1899, and was addressed a number of times during the session by members of the faculty and others. Dr. McCulloch resigned his position on February 1st and was succeeded on April 1st by Dr. John Spencer, of Ontario, Canada.

The corps of cadets, under command of Col. A. T. Finch, attended the Carnival in Richmond from May 15th to 19th. On arriving at Richmond, the corps was assigned to quarters in the Auditorium at the fair grounds. The battalion was given a prominent place in the parade on the 18th, and was the recipient of much praise all along the route. The battalion was in splendid condition and expected to give several exhibition drills; but the rain prevented all except one, a dress parade which was highly complimented.

Col. Finch ('93) resigned his office as Commandant and Professor of Military Science and Tactics in June and was succeeded by Mr. J. S. A. Johnson ('98), who was also made Assistant Professor of Mechanical Engineering. Instructors W. G. Connor and W. H. Rasche were promoted to Assistant Professors. Of the class of 1900, Mr. R. H. C. Beverly was appointed to the fellowship in Mechanical Engineering; Mr. G. L. Fentress in Mathematics and French; Mr. J. A. Waddell in Mechanical Technology, and First Assistant Commandant; Mr. S. H. McGregor in Wood Work, and Second Assistant Commandant; Mr. J. A. Jackson ('00) was made Librarian to succeed Mr. C. L. Allen, resigned. Mr. J. H. Shultz, of Lynchburg, Va., was appointed Mess Steward, with the rank of major on the staff.

The Camper property, adjoining the Institute grounds on the east, was purchased, the buildings and fence removed, and the grounds made a part of the campus. A wooden cottage was erected on this lot and assigned to the steward, Mr. Shultz, who moved into it during the summer. The Starkey house had been purchased and remodelled for the quarters of the Uniform Department, lately established. This department was put under the direction of Mr. T. J. Walsh,

formerly First Assistant Cutter at the West Point Military Academy. The total attendance this session was three hundred and forty-three.

Prof. Pritchard's residence, a frame building on the boulevard, was completed and occupied in September, 1900. Barracks No. 3, a brick building of four stories, containing sixty rooms, was finished about the same time. The power and heating plant (a large stone structure situated to the north of the dormitory, with a large coal-storage bin adjoining it) was also completed this fall. It was used only as a heating plant until the next April, when the electric light plant was moved from the machine shops and installed in this building. The heat and light plant then furnished the power for the electric lights on the campus and in town; for the water-pumping station; and steam heat for the barracks, and later for the Science Hall and Y. M. C. A. building.

Immediately after the final examinations, on the first of June, the corps of cadets left Blacksburg to attend the Pan-American Exposition at Buffalo, N. Y. The corps consisted of four infantry companies, battery, band, and drum corps, numbering three hundred and eighty-six in all, and was in charge of Col. J. S. A. Johnson, the Commandant. The cadets were quartered in tents on the exposition grounds and were given free passes in and out of the grounds. They gave either a dress parade or a battalion drill every afternoon on the Plaza and were complimented on the excellent showing which they made before the large and appreciative crowds gathered to witness the exhibition. Before returning, the cadets made an excursion to Niagara Falls and rode around the Gorge, both of which trips were thoroughly enjoyed by everyone. The corps returned to the Institute about the ninth of June, in time to celebrate the commencement exercises before being dismissed for the session.

Several changes in the faculty were made in June. Instructors F. D. Wilson ('94), H. L. Price ('98), were promoted to Assistant Professors. Assistant Waddel was made an Instructor. Mr. A. P. Spencer, of Ontario, Canada, was appointed Instructor in Animal Husbandry; Mr. S. B. Andrews, Instructor in Machine Work; and Mr. H. N. Faulkner, Assistant in

Forge and Foundry. Appointments to fellowships from the class of '01 were made as follows : Mr. M. W. Davidson, French; Mr. J. M. Hicks, Mathematics and English, and Second Assistant Commandant; Mr. W. M. Brodie, Librarian, and Third Assistant Commandant; Mr. A. H. Fleet, Mathematics; Mr. J. H. Gwathmey, Foundry Work; Mr. T. G. Wood, Botany and English. Mr. L. M. Hale ('93-'96) was appointed Superintendent of the Laundry.

During the summer of 1901, the Willis property adjoining the Institute grounds on the east side was purchased, the fence removed, and the grounds thrown into the campus. The Willis house, remodelled and transformed into a nice wooden cottage, was assigned to the Marshal, Mr. D. O. Matthews, as a residence. To the horticultural department were assigned twenty-five acres of the college farm behind the orchard; and the gardens between the boulevard and the creek south of it were added to the athletic and parade ground which had been found to be too small.

The new Science Hall was now well under course of erection. Although it was not completed, most of the departments of science moved into their new quarters at the beginning of session 1901-'02, and began work at once. The new hall was a brick building of three stories, besides attic and basement, situated at the north corner of the quadrangle. The basement was devoted to various lecture rooms and the dynamo laboratory of the Electrical Engineering Department. On the first floor was the Department of Biology with a lecture room, a large laboratory, two smaller laboratories, and a museum; here also was the Department of Physics with its large lecture room and four laboratories. On the second floor was the Department of Inorganic Chemistry, Metallurgy, and Industrial Chemistry, with a large lecture room, office, supply and preparation room, assay room, and three laboratories; also the Departments of Geology and Mineralogy with a large lecture room, office, laboratory, and museum. The third floor was divided into three large laboratories for Qualitative and Quantitative Analysis, one lecture room, an office and library, supply rooms, and five smaller laboratories. Photographic rooms were fitted up in the attic.

After the removal of the scientific departments to the Science Hall, the First Academic Building was fitted up and assigned to the Departments of Civil Engineering and Mechanical Engineering, with one room reserved for the Armory. The remainder of the building was divided up into Drawing rooms, the Civil Engineering lecture rooms, the Mechanical Engineering offices and lecture rooms, and the Mechanical laboratory. The first and second floors of the Second Academic Building were assigned to the Departments of English and Modern Languages; while the third floor was devoted to the Library, and the halls for the Lee and Maury Literary Societies.

The handsome building of the Young Men's Christian Association was opened at the beginning of the session 1901-'02, with Mr. J. M. McIntyre, of Salem, Va., as General Secretary. This building of unhewn stone, four stories in height and situated near the east end of the boulevard, contained reading rooms, game rooms, offices, reception and committee rooms, auditorium, gymnasium, baths and lockers, and dormitory rooms. As the building belonged to the students it soon became practically the social and religious center of student life. The credit for its erection and equipment is due largely to the efforts of Mr. Lawrence Priddy ('98) who took a deep and vital interest in everything connected with the Association and its work.

Until this session, the Institute had been allowed an annual appropriation of \$15,000.00. During this winter, however, the amount of the appropriation was increased to \$25,000.00 annually, and a special allowance of \$25,000.00 was made for extraordinary expenses.

On April 1st, 1902, the corps of cadets, consisting of five companies of infantry, battery, band and drum corps left Christiansburg for the Exposition at Charleston, S. C., under the command of Col. J. S. A. Johnson. (Company E had been organized the preceding fall with Capt. B. Bolling commanding). Arriving at Charleston the next day, the cadets were assigned to tents conveniently located on the exposition grounds. The exhibition drills given by the battalion each afternoon were well attended and highly compli-

mented. The trip was especially enjoyable from a social standpoint, as the cadets received every attention and kindness from the people of Charleston and the Citadel cadets. On Wednesday, April 9th, the corps was assigned an important position in the parade which escorted President Roosevelt to the exposition grounds. Upon reaching the parade ground the troops were reviewed by the President and his party; and when our band began to play "Dixie" just as the battalion was approaching the reviewing stand, the crowd cheered to the echo. The ladies of the presidential party waved their handkerchiefs and clapped their hands, and the President's mouth expanded to a hearty smile which seemed to indicate that he, too, was "dee-lighted." The cadets broke camp after the parade and boarded the train for Christiansburg very enthusiastic over the exposition, and highly pleased with the trip in general. The attendance for this session was four hundred and eighty-six, and with a few exceptions, every man accompanied the corps to the exposition.

The President's new house, a handsome brick residence in the Grove, was completed in April and Dr. McBryde moved into it the latter part of the month. The Hoge house, near Mr. Ed Black's, with six acres of land attached, had been rented by the Institute and used as an Infirmary; but now the Infirmary was removed to the brick residence just vacated by Dr. McBryde, and the Hoge house and lot purchased and assigned to Prof. Campbell. During the session a complete system of sewerage with a new sewage disposal plant was completed.

In June, changes were made in the faculty for next year and announced as follows : Promotions—Assistant Professor Spencer to be Professor of Veterinary Science, to succeed Prof. E. P. Niles, who resigned in May; Adjunct Professor Parrott to be Professor of Mechanic Arts; Assistant Professor Johnson to be Adjunct Professor of Mechanical Engineering, and Professor of Military Science and Tactics; Assistant Professors W. D. Saunders, G. W. Walker, F. D. Wilson, and H. L. Price to be Adjunct Professors; and Instructor A. W. Drinkard to be Assistant Professor. Appointments—Mr. M. Ferguson, Ph. D. ('96), Assistant Professor of Agriculture;

Mr. J. C. Ferneyhough, D. V. M., ('98), State Veterinarian and Assistant Professor of Veterinary Science; Mr. W. M. Brodie ('01), Assistant in Mathematics and First Assistant Commandant; Mr. T. G. Wood ('01), Second Assistant Commandant; Mr. J. F. Strauss ('94), Assistant in Drawing; Mr. C. P. Miles ('01), Assistant in French and Chemistry; Mr. F. M. Spiller ('02), Drawing; Mr. C. Williams ('02), Drawing; and Mr. C. D. Taliaferro, Registrar. Mr. J. L. Phillips ('97) was appointed Assistant State Entomologist and Pathologist. Fellowships (Class '02) : Mr. C. L. Proctor, Spanish; Mr. H. L. Davidson, Chemistry; Mr. W. F. Tams, Mathematics; Mr. W. P. Tams, Mathematics; Mr. J. I. Palmore, English and Third Assistant Commandant; Mr. J. W. C. West, Engineering; Mr. G. R. Talcott, Engineering; Mr. P. S. Murrill, English and Spanish; Mr. P. T. Jones, Mathematics; Mr. W. T. Young, English and Engineering; Mr. A. O. Arvin, Wood Work; and Mr. W. T. Wilson, Drawing.

Prof. Campbell moved into the Hoge house in September, 1902, and his old residence, which had been occupied in previous years by Dr. M. P. Scott and by Prof. Fitts, was fitted up and assigned to the Department of Agriculture. The out-buildings and fence were removed and the grounds cleared up and made a part of the campus. The Gitt property, adjoining the Institute grounds on the north-east, had already been purchased, the fence removed, and the grounds thrown into the campus. The frame house erected on this lot was completed this month and assigned to Prof. Parrott. Instructor Lee's residence, erected on a part of the lot purchased from the Willis estate, was also completed about the same time. Dormitory No. 4, a four-story brick building containing sixty rooms, was completed the latter part of September; as was also the first addition to the Machine Shop, a two-story brick wing, thirty-eight by seventy feet.

The new Infirmary, in the President's old house, was opened at the beginning of the session with Miss Frances Brockenbrough, a trained nurse of experience, as Superintendent. The old house had been entirely remodelled during the summer, the front changed, and a two-story "L," containing two wards of sixteen beds each, added on the south

side. When finished, the building contained the two wards, private rooms, bath-rooms, nurses' rooms, dining room, waiting room, surgeon's office and kitchen, and was equipped with beds, tables, chairs, operating tables, etc., of best modern make for hospital use. Prof. Alwood's residence, a large brick house in the old orchard and in line with the other houses of Faculty Row, was completed and occupied in the fall.

A post-office for the collection and distribution of students' mail, and a book-room for the sale of text-books and supplies, were established in Barracks No. 1, in the marshal's office, and the room adjoining.

The attendance this season was the largest so far in the history of the college, the number of students being six hundred and twenty-seven. On account of the increased attendance, another company of infantry, Company F, was organized, commanded by Capt. W. R. Crute. This made six companies of infantry and so the battalion looked more uniform than when it was composed of an odd number of companies. The other organizations of the corps were the battery, band and drum corps, signal corps, and staff.

Prof. E. A. Smyth, A. M., was made Dean of the Faculty in June, 1903. At the same time, Mr. J. E. Williams, M. A., Ph. D., of the University of Virginia, was appointed Adjunct Professor of Mathematics; Mr. H. L. Wilson, B. S., Adjunct Professor of Geology and Mineralogy; Mr. J. B. McBryde, A. B., C. E., of Blacksburg, Va., Assistant Professor of Organic Chemistry; Mr. C. M. Newman, M. A., Ph. D., of Bristol, Va., Assistant Professor of English; Mr. G. L. Fentress ('99), B. S., M. S., of Norfolk, Va., Instructor in Mathematics; Mr. J. R. C. Brown, A. B., of Penn Laird, Va., Instructor in Spanish and History; Mr. P. H. Eley, A. B. of Tennessee, Instructor in Spanish and English; Mr. J. H. Gibboney ('01) B. S., Assistant in Analytical Chemistry, and Assistant Chemist to the Station. Assistant Professors W. G. Connor ('92), W. H. Rasche, and M. Ferguson ('96), were promoted to Adjunct Professors; Assistants W. M. Brodie ('01), T. G. Wood ('01), C. P. Miles ('01), and W. A. P. Moncure ('01), to Instructors. To the fellowships from the class of '03 were appointed Mr. L.

O'Shaughnessy, Surveying; Mr. W. L. Blair, Mechanical Technology and Drawing, and Fourth Assistant Commandant; Mr. G. A. Chalkley, Surveying and Drawing; Mr. R. Sale, Agriculture; Mr. J. S. Counselman, Surveying and Drawing; Mr. J. T. Neely, Mathematics and Mechanical Engineering; Mr. H. B. Goodloe, Electrical Engineering. Messrs. C. H. Carpenter and S. A. Obenshain, of the class of '03, were appointed Assistants in Surveying.

In August, Miss Mary G. Lacy, of Lynchburg, Va., was appointed Librarian, and Maj. B. R. Selden, of Richmond, Va., was made Registrar to succeed Mr. C. D. Taliaferro, who died in July. The Laundry and Tailor's Shop, a large brick building with laundry on first floor and tailoring department on second, both equipped with modern facilities, was completed and occupied in September. The old Starkey cottage, which had been occupied by the tailoring department, was refitted and assigned to Mr. J. L. Phillips, the State Entomologist and Pathologist, for office and laboratories.

A new college weekly, "The Virginia Tech," was established during the fall of 1903, with Mr. J. B. McBryde as Editor-in-Chief. This paper was the official organ of the Athletic Association and corresponded somewhat to "The Cohee," which had been established and discontinued in the session of 1897-98. The Board of Associate Editors consisted of four members of the Faculty, and a representative from each one of the classes. The first issue appeared October 7th. The bleachers, with a seating capacity of one thousand, were erected in April by "The Tech," and presented to the Athletic Association.

During the winter, the Legislature gave the college an appropriation of \$165,000.00 for the erection of new buildings and the purchase of equipment. The new Administration Building, erected on the site of the old Rock House, which had been destroyed by fire, was completed in April and the offices occupied by the executive department. The new building, of undressed stone, was made larger and more convenient than the one formerly used for this purpose. It contained fire-proof vaults, and ten office rooms, occupied by the President, the Commandant, the Registrar, the Treasurer,

the secretaries, and the heads of the various departments.

On April 19, 1904, President McBryde was unanimously elected President of the University of Virginia. President McBryde, however, declined the honor and stated his reasons for so doing in a letter addressed to the Board of Visitors. Extracts from this letter were published in the daily papers at the time.

Probably the most successful of all the trips taken by the corps of cadets of this Institute up to this time was the one to the World's Fair at St. Louis, in the spring of 1904. The V. P. I. train left Christiansburg on the morning of May 31st in two sections. The infantry battalion of six companies constituted the first section; the battery, band, signal corps, drum and bugle corps, the staff, post-graduates, and former students, the second section. Two Pullman coaches were attached to the second section and furnished accommodations for the ladies, Institute officers and guests. The entire party numbered five hundred and fifty-four. The cadets, on their arrival at St. Louis, were assigned to a well-arranged camp, conveniently located on the exposition grounds. The frequent heavy rains during the week which was spent there greatly interfered with the exhibition drills and parades which had been planned; but those which were given on the Plaza of St. Louis were witnessed by a large concourse of people. The movements were all executed with a remarkable degree of precision and accuracy, and received nothing but the highest commendation from all sides. Of the large number of military organizations present from all sections of the country, the universal verdict was that our corps easily ranked next to that of West Point. The corps broke camp in St. Louis on the eighth of June, and returned to the Institute in time for commencement. The total attendance for the session was seven hundred and twenty-seven.

Many important changes were made in the faculty for the session of 1904-'05. Prof. R. C. Price, Adjunct Prof. H. L. Wilson, and Instructors J. R. C. Brown, and P. H. Eley, resigned. Adjunct Professors G. W. Walker, F. D. Wilson, J. E. Williams, and H. L. Price, were made full Professors. Assistants J. H. Gibboney, H. L. Davidson and L. O'Shaughnessy

were made Instructors. Mr. T. L. Watson ('90), M. S. Ph. D., formerly Professor at Denison University, Ohio, was made Professor of Geology and Mineralogy. Mr. A. M. Soule, B. S. A., formerly Director of Station and Professor of Agriculture at the University of Tennessee, was made Professor of Animal Husbandry and Director of the Station; Mr. W. B. Ellett ('94), Ph. D., of Christiansburg, Virginia, was made Assistant Chemist to the Station; Mr. F. H. Abbot, M. A., of Bellevue, Virginia, Assistant Professor of English; Mr. J. R. Fain, B. S., formerly Assistant Professor of Agriculture at the University of Tennessee, Assistant Professor in Agronomy; Mr. P. O. Vanatter, of the University of Tennessee, Instructor in Agronomy; and Mr. H. S. Worthington, M. A., of Alexandria, Virginia, Instructor in Modern Languages. Fellowships were assigned to the class of '04 as follows: Mr. F. L. Robeson, Mathematics and Drawing; Mr. H. H. Gary, Mathematics; Mr. G. W. Wade, Laboratory Electricity; Mr. J. J. Davis, Modern Languages; and Mr. W. E. Wine, Drawing. The following members of the class of '04 were made Assistants: Mr. L. C. Burton, Wood Work; Mr. R. R. Page, Field Surveying; Mr. W. A. Dunn, Field Surveying; Mr. L. L. Kelly, Drawing; and Mr. D. M. Cloyd, Jr., Fourth Assistant Commandant.

At this time, too, several important changes were made in the organization of the Institute. Four Departments were created each with its own faculty and dean: Academic Department, Prof. T. P. Campbell, Dean; Scientific, Prof. R. J. Davidson, Dean; Engineering, Prof. W. M. Patton, Dean; Agricultural, Prof. A. M. Soule, Dean. Prof. E. A. Smyth was already Dean of the Faculty. The President, the Dean of the Faculty, the Deans of the Departments, and the Commandant, composed the Executive Council.

A geological survey of the State of Virginia, with special reference to its economic resources, was authorized by the State Board of Agriculture, and by the Board of Visitors of the Virginia Polytechnic Institute at a meeting of the Board held during the summer of 1904. Dr. T. L. Watson, Professor of Geology in this Institute, was appointed geologist in charge of this survey. It was the purpose of the survey to make

complete investigations of the mineral resources of the State that are of commercial value, and to publish separate reports on each individual subject as fast as completed. By the close of the year 1905 published reports were issued on the following subjects: "The Zinc and Lead Deposits"; "The Water Powers"; "The Brown Ores"; "The Clay Deposits and Clay Industry"; "Cement Materials and Cement Industry"; "The Copper Deposits"; and "Building and Ornamental Stones." Much of the work was planned in connection with the United States Geological Survey, which not only enlarged the scope of the work, but secured for each problem the services of an expert geologist.

During the summer, the hill between Barracks No. 3 and the site for the new Barracks No. 5, which was finished in January following, was cut down and faced with a heavy stone wall so as to continue the parade ground in the form of a terrace in front of these two buildings. On the west side of this terrace was built a handsome flight of stone steps. Dean Smyth's residence, a large brick house in the old orchard, and in line with the other houses of Faculty Row, was completed and occupied about September 1st. Mr. W. E. Barlow, M. A., Ph. D., of the University of Iowa, was appointed Assistant Professor of Chemistry in September. Mr. W. B. Alwood had resigned his chair of Entomology and Mycology in August.

Up to this time all travel and hauling between Blacksburg and Christiansburg had been done by means of hacks and wagons, and this was necessarily very inconvenient, even when the roads were at their best. At last, however, after many disappointments, a railroad was built; and the arrival in Blacksburg on September 15th of the first passenger train was an incident of great importance to the school and the town. The road was built during the summer by the Virginia Anthracite Coal and Railway Company, Prof. L. S. Randolph, of the Institute, President. A small depot was built on the lot to the south side of Dr. K. Black's residence and southwest of Kipps' Hotel, the old Amiss House. Four passenger trains each way were run daily, three of which carried mail. Even before its completion the road had been dubbed "The Huckle-

berry," and "The Huckleberry" it will no doubt remain for many years to come.

The attendance for 1904-'05 was seven hundred and thirty-one; since the dining hall could not accommodate so large a number at once, the large auditorium room over the mess was turned over to the Dining Hall Department; and a large four-story brick addition in the rear of the hall was completed in September. The building now contained two large dining halls with a seating capacity of nine hundred, one private dining room for instructors and graduates, seating fifty people; five storage rooms, dish rooms, kitchen, bake-shop, linen room, and eleven dormitory rooms on the fourth floor, known as the Y. M. C. A. Annex. The building was heated from the basement.

The second large addition to the Machine Shop was also completed in September. The original building was the old Preston and Olin Institute, and it was used as a dormitory from the founding of the Virginia Agricultural and Mechanical College until 1888. The two additions to the original building were placed in such a way as to form a quadrangle with a small open court in the center. The first floor of the building contained the Machine Shop Department, while the second floor was devoted to the Wood Working Department. The power for each department of the shop and division of floors was furnished by small dynamos driven from the large power plant just north of the barracks.

On the night of February 22nd, the Science Hall, a description of which has already been given (p. 36), was totally destroyed by fire. The Departments of Chemistry and Geology suffered a total loss of equipment. Fortunately, Prof. Smyth's collection of butterflies and birds had been removed to his house just before the fire, and so escaped injury. The Departments of Physics and Electricity sustained a partial loss of equipment, and what apparatus could be saved was greatly damaged by handling. The loss to the Institute was about \$30,000.00, not including the severe loss sustained by the various professors in books, manuscripts and private collections. The entire corps and the faculty turned out at the alarm of fire and, with the fire-fighting apparatus belonging

to the Institute, did all in their power to save the building, but without avail. Indeed, it was only by the most heroic efforts that Barracks No. 4 was saved. Cadet B. D. Hynes, of Illinois, so distinguished himself in his efforts to save No. 4 that he was presented with a gold medal by the Institute for his bravery. The scientific departments found temporary quarters in the other buildings on the campus, and regular work was resumed the second day after the fire.

Work on the rebuilding of the Science Hall was begun immediately. The new building was similar to the one destroyed by fire with the exception of a few changes in the interior arrangement. It was completed shortly after the opening of the following session. Barracks No. 5, a four-story brick building of sixty rooms had been completed in January. The new Auditorium, a handsome stone building on the south side of the campus, with a seating capacity of twelve hundred, was begun in September and completed in time for the 1905 commencement. A large stock-feeding barn and two cottages of four rooms each were completed during the session and assigned to the Department of Agriculture. A large wooden experimental barn was built for conducting experiments in cereals of different kinds. The new residence for Prof. Soule, at the east end of College Grove, was completed in June and Prof. Soule moved into it during the summer. Plans were made for the Agricultural Hall to be located just across the branch in front of the Creamery, and work on the building was begun the following session. This was to be a four-story, stone building for the accommodation of the Departments of Agriculture, Horticulture, and Veterinary Medicine.

The different departments of the Institute at this time had been greatly enlarged and developed as compared with their scope and efficiency fourteen years before. The facilities for laboratory work had been greatly increased; the equipment had been added to from year to year; buildings had been erected where none had existed before; and the attendance had increased from less than a hundred to more than seven hundred. Nine courses of study were offered this session : Agriculture, Horticulture, Applied Chemistry, Applied Geol-

ogy, Preparatory Course for Medicine, General Science, and Civil, Mechanical, and Electrical Engineering—each of four years' duration and leading to the degree of Bachelor of Science (B. S.). Post-graduate courses leading to the degree of Master of Science (M. S.), Civil Engineer (C. E.), and Mechanical Engineer (M. E.), were also offered. The thoroughness and efficiency of the work done in the various departments are best shown by the remarkable success of the graduates, who command remunerative positions in this and other countries.

The new class schedule went into effect the first of February, 1905. Under this schedule the morning was divided into five class periods of fifty minutes each, running from 8:20 A. M. to 12:30 P. M., thus allowing each regular student to have two vacant periods each morning for study and preparation. By this arrangement a student could also take up one or more extra subjects besides his regular work. The laboratory period was made to run from 1:30 P. M. to 3:45 P. M., and drill from 3:45 to 4:30.

The religious interests of the student-body have always been attended to. Attendance at morning prayers, held in the chapel every day except Sunday, and at the Sunday morning service of some one of the village churches, was then, as now, compulsory. The chapel services were conducted by the pastors of the several churches, each acting as chaplain in turn: Rev. D. J. Woods, Presbyterian; Rev. A. J. Nock, Episcopal; Rev. E. B. Jackson, Baptist; Rev. E. B. Kemm, Christian Baptist; Rev. J. M. Killian, Lutheran; and Rev. R. J. Fultz, Methodist. The Young Men's Christian Association, the Sunday Schools, and the Bible Classes, some conducted by members of the faculty and others by students, all tended to throw about the students an influence of refinement and culture and to surround them with an atmosphere of morality and Christian activity.

The Lee and Maury Literary Societies held weekly meetings in their handsomely furnished halls on the third floor of the Second Academic Building. For several years the student-body had shown very little interest in literary work; but now a marked improvement began to be noticed. The

weekly attendance grew larger, the membership was increased, and the public debates held in the spring, as well as the annual celebrations at commencement reflected great credit upon the work of the societies. The Library was remodelled under the supervision of Miss Lacy and many improvements effected. There were added at different times : three thousand, one hundred and sixty-nine new books, making a total of five thousand, seven hundred and twenty-five volumes ; thirty-one new periodicals, making a total current periodical list of sixty-five. Forty newspaper files and five magazine racks were placed in the Library, together with five reading tables and one thousand one hundred and thirty-six feet of shelving.

The Institute, in co-operation with the State Board of Agriculture, conducted a number of institutes for farmers in different sections of the State. The college campus was extended so as to include the grove, just above the old Smithfield place. The campus now contained ninety acres, well set in grass, and with new walks and drives tastily and conveniently laid out. These were kept in excellent condition and added much to the beauty of the grounds.

The General Athletic Association, organized by the corps of cadets in the fall of 1891, for the control of all branches of college sports was, until the fall of 1901, entirely under student management. At this time, a system of graduate management was instituted, which proved very satisfactory. On December 12, 1903, however, the Executive Committee decided on a complete reorganization. Mr. J. H. Gibboney ('01) was asked to accept the position of Graduate Manager and to outline for the committee's approval a policy for the future guidance of the Athletic Association. The policy which he drew up, and which was approved by the committee, inaugurated the Athletic Council, which was to have complete control over every branch of athletics in the Institute. The Council was composed of two members of the faculty committee on athletics, one member from the post-graduate, one from the senior class, and the Graduate Manager, and the Treasurer, both from the post-graduates. Mr. H. L. Price ('98) was elected permanent Treasurer. Under this system of management our position in the athletic world was greatly

raised, and football games were arranged with leading Northern colleges, such as the United States Military and Naval Academies and Dartmouth. Mr. John C. O'Connor, of Dartmouth, was secured to coach and train all athletic teams for the session of 1905-'06.

On May 26, 1905, the Institute suffered a severe loss in the death of Col. W. M. Patton, Professor of Civil Engineering and Dean of the Engineering Department. Col. Patton had been a member of the faculty since 1895. During that time he had developed and strengthened his department and brought it up to a high plane of efficiency. The men who graduated under him during those years now hold positions of trust and responsibility with the leading engineering firms of the time. Col. Patton was an author as well as a teacher, and many of his books on engineering subjects have been used as text-books in the leading engineering schools of the country. His death was a heavy blow to his associates in the faculty, to his pupils, and to all others who had been so fortunate as to be numbered among his friends.

LIFE OF COLONEL WM. M. PATTON

A Sketch by Mr. John W. Stull

The subject of this sketch was born in Richmond, Va., August 22nd, 1845, and was educated in this city and at the Virginia Military Institute. While a student in the latter institution he showed marked ability in his chosen profession, civil engineering, and very soon after graduation in 1864 he was given a very important position as civil engineer on the construction of the Mobile & Alabama Railroad between Mobile and New Orleans. The construction of this road was performed under extreme difficulties through swamps and marshes. The undertaking was considered by many engineers to be impracticable, but young Patton, who had, while a cadet at the V. M. I., fearlessly faced the Federal forces at the battle of New Market, stuck to his post with that determination to

win which was one of his strongest characteristics, and completed what was then recognized as one of the most difficult and complete engineering schemes in the country. The ability and courage displayed in the location and construction of the Mobile and Alabama railroad gave Col. Patton a lead in his profession, and when the Board of Visitors of the V. M. I., in the early seventies, had occasion to choose a professor of engineering he was unanimously elected to fill this chair. After teaching successfully and satisfactorily for a number of years he voluntarily gave up this position and was employed by the Baltimore & Ohio Railway Co. as engineer in charge of the construction of the bridge across the Susquehanna river near Havre-de-Grace. During the construction of this famous structure in railroad engineering Col. Patton had difficulties to overcome in the permanent establishing of the foundation for the super structure. These difficulties he successfully mastered and soon after completing the bridge, which stands today a monument to his ability, he had published his famous treatises on foundations. He again took charge of the engineering department of the V. M. I., which position he held until the early nineties, when he went to Chicago to be consulting engineer in the construction of the Chicago Drainage Canal. About this time he had published his treatises on civil engineering which is recognized in the engineering world as one of the most valuable contributions to the profession which has ever been printed. Both this book and the one on foundations referred to above are now being extensively used as text books for advanced students in engineering and as books of reference by hundreds of the leading engineers of the world.

In 1895 the Board of Visitors of the V. P. I. elected Col. Patton to the chair of civil engineering and dean of the engineering department in this institution, which position he held with great distinction until his death in May, 1905.

As a memorial to this universally loved and admired friend, we, the members of the Alumni Association of the V. P. I., do herein record the deep sense of sorrow which we feel because of his death, the great loss which we recognize this death to be to our Alma Mater, our appreciation of his

attainments and distinguished ability as a scholar and an educator, his unfaltering devotion to duty and his sterling worth as a gentleman. As an educator and teacher he had no superior and few equals. As a consulting engineer he was much in demand, and as such his judgment was ever precise and accurate. He was ever ready and willing to help a student to master difficulties both in the class-room and out of it, and he never appeared to tire of explaining to any of us, who were too dull to see them, any engineering principles which we failed to grasp, but which were perfectly simple to him.

FACULTY NOTES

Instructor Charles W. Holdaway was married to Miss Clara A. McTavish, December 25, 1907, at Tavistock, Ontario, Canada.

Mr. Charles H. Moorefield ('06), who after graduation accepted a position with the Tidewater Railway, was appointed Instructor in the Department of Civil Engineering in January, and received the degree of Civil Engineer in June, 1908.

In February a number of the officers and teachers of the Institute organized the "Cue Club" for the pleasure and recreation of its members, and rooms were fitted up over the Dining Hall. The officers are Col. G. H. Jamerson, President; Dr. Walter B. Ellett, Vice-President; Mr. J. H. Shultz, Secretary-Treasurer.

March 1, Mr. Robert T. Ellett was appointed Assistant to the Treasurer and Secretary of the Faculty, succeeding Mr. Courtney Williams, resigned.

On March 24 President Barringer, Dr. W. J. Quick, Prof. Carrier, and Prof. Saunders attended a farmers' institute and meeting of dairymen at Dayton, in Rockingham County.

During March and April, Prof. A. P. Spencer visited the counties of Wythe, Tazewell, Albemarle, and Culpeper, to secure statistics relative to the sheep industry in those sections.

Last spring, Professor Randolph designed and superintended the erection of the lift bridge which carries the Virginia Anthracite Railway over the Virginian Railway. This bridge is unique in that the two roads make a very acute angle at this point. The bridge was designed in twenty-four hours and was erected in seven days by day force alone.

During the last two months of the session of 1907-'08, Dr. Carol M. Newman was compelled to relinquish his work in the Department of Rhetoric on account of ill health, and spent this time traveling in Italy and Germany.

In May, Prof. Smyth, by invitation, gave an illustrated lecture on Birds before the young ladies of Sweet Briar Institute. About 80 slides, mostly photographed from life, were exhibited, and the matter of bird protection was especially dwelt upon.

Mr. S. M. Herrick, Assistant Chemist in the Experiment Station, visited his home in Connecticut during the month of June.

In June, Prof. Walton K. Brainerd, of the University of West Virginia, was appointed Professor of Dairying, to succeed Prof. W. D. Saunders, resigned.

At a meeting of the Board of Visitors, June 10, 1908, Prof. Otto C. Burkhart, of Lehigh University, was elected to the new chair of Mining Engineering.

June 24, Mr. Robert T. Ellett, Assistant to the Treasurer and Secretary of the Faculty, was married to Miss Mabel Maud Henderson, at Blacksburg.

Early in June, Instructor Harry Gudheim and family sailed for their old home in Sweden. Mr. Gudheim returned in time to begin his work here at the opening of the session, leaving Mrs. Gudheim and their two little sons to spend the winter in Sweden.

Prof. J. S. A. Johnson spent four weeks at Lehigh University during June and July, doing special work in the mechanical laboratory.

July 1, 1908, Dr. Meade Ferguson, Professor of Bacteriology and Mycology, resigned to accept the position of Bacteriologist to the State Board of Health, with headquarters at Richmond.

Col. T. G. Wood, Associate in Biology and Assistant Commandant of Cadets, resigned on July 1, to become Principal of the Agricultural High School at Burkeville, Va.

July 1, Mr. E. B. Fred, Instructor in Mycology, resigned his position with the College to become Assistant Bacteriologist of the Experiment Station. He will have charge of the experiments in soil bacteriology begun by Dr. Ferguson.

Prof. Smyth spent two weeks in July visiting museums and biological laboratories in the North. In particular, equipment and laboratory methods in entomology at Cornell were investigated.

Dr. Fletcher, on July 20 and 21, delivered stereopticon lectures on Civic Improvement and Home Orcharding at the Summer School of the University of Virginia.

Dr. E. A. Smyth, Dr. W. B. Ellett, Prof. H. L. Price and A. W. Drinkard, and Instructor E. B. Fred attended the Graduate School of Agriculture at Cornell University during the month of July, 1908. Dr. Ellett, Prof. Price, and Mr. Fred also visited several of the New England experiment stations.

Col. W. M. Brodie and Instructor W. P. Angel were at Columbia University, New York, taking a summer course, during July and August.

Captain G. H. Jamerson attended the National Rifle Competition, at Camp Perry, Ohio, during the summer. This is an annual event, participated in by shooting teams from the military organizations of the different States.

During the summer, Professor Randolph has been putting his notes on Engineering Economy in typewritten form for third term post-graduate work.

Dr. and Mrs. John Spencer spent the summer in Ontario, Canada.

On Saturday, August 1, Prof. W. D. Saunders, Dairy and Food Commissioner, Prof. W. K. Brainerd, and President Barringer attended and took part in a meeting at Staunton, Va., which resulted in the organization of the Staunton Co-operative Creamery Association for the purpose of handling milk and developing the dairy industry in that section.

At the annual meeting of the Virginia State Farmers' Institute at Richmond, August 4-6, the College and Experiment

Station were represented by Drs. P. B. Barringer, W. J. Quick, S. W. Fletcher, and W. B. Ellett; Profs. Lyman Carrier and A. P. Spencer; Messrs. T. B. Hutcheson, E. B. Fred, A. W. Drinkard, Jr., and S. M. McMurran. Several of these gentlemen addressed the meeting on subjects connected with their respective lines of work. They also took with them a very instructive exhibit, illustrating various problems relating to horticulture, farm crops, soils, and stock feeding.

In August, Dr. Howard B. Reed, of the Bureau of Soils at Washington, and formerly connected with the Universities of Missouri and Michigan, was appointed Professor of Plant Pathology and Pathologist of the Experiment Station. He entered upon his duties on September 15.

August 19, Dr. S. W. Fletcher and Mr. E. B. Fred attended a farmers' convention at Appomattox C. H., Va., where Dr. Fletcher delivered an illustrated lecture on soils. The Station has secured a new acetylene outfit for presenting stereopticon views, which will greatly facilitate such work. The Director has arranged twelve illustrated lectures on the subjects named below, which are delivered in any part of Virginia, upon request, free of charge :

1. Civic Improvement in City, Town, and Village.
2. The Planting and Care of Home Grounds.
3. The School Grounds and Nature Study.
4. The Soil; What It Is.
5. The Fertility of the Soil.
6. The Planting of Orchards.
7. The Care of Orchards.
8. Fighting the Enemies of Fruit.
9. The Culture of the Apple.
10. The Culture of the Peach.
11. The Culture of Strawberries.
12. The Work of the Virginia Agricultural Experiment Station.

The lecture on Civic Improvement, which has been given at Blacksburg under the auspices of the Woman's Civic Betterment Club, is both instructive and entertaining, and well calculated to create an interest in that subject.

On August 26, Dr. W. J. Quick resigned as Dean of the Agricultural Department and Professor H. L. Price was appointed to the position. Dr. Quick retains his position as head of the Animal Husbandry Department.

Prof. Randolph has recently completed the consulting work on the electrical plant at Salem, Virginia, by the installation of the three-stage centrifugal pumps driven by 2,200-volt three-phase motors. This installation is rather unique in that each pump is arranged to pump against two different heads with two different quantities of water so that the power used by the pump will be the same in both cases, Salem having high and low surface reservoirs.

Prof. H. S. Worthington was married to Miss Helen M. Coale on September 3, 1908, at Montclair, N. J.

On September 9, Dr. S. W. Fletcher attended a farmers' meeting at Ridgeway, Henry County, and gave a lantern-slide talk on Soil Fertility.

Professor Carrier and Instructor Hutcheson spent the latter part of September visiting many farmers of the State and attending agricultural fairs in search of the most improved types of Virginia corn, to be used in their corn-breeding experiments.

Prof. R. J. Davidson has recently been appointed a member of the American Committee on Agricultural Chemistry, to attend the International Congress of Applied Chemistry, which meets in London, May 27 to June 2, 1909. Prof. Davidson is also requested to serve as chairman of a committee to present to the Congress the question of unification of terms in reporting analytical results.

ITEMS OF INTEREST

The farmers attending the short course in Agriculture given at the Virginia Polytechnic Institute during December, 1907, organized the "Farmers' Winter Course Association," with the view of keeping in touch with each other and furthering this branch of the college work. The officers of the as-

sociation are : John E. Walker, President; W. A. Raudabaugh, Powhatan, Va., Vice-President; Woodson Venable, Farmville, Va., Secretary-Treasurer.

The State Legislature, at its session in January, 1908, passed a bill establishing at V. P. I. a department to be known as the School of Mines. A building for this work has been erected near Science Hall, providing office, recitation, and drawing rooms; and a complete plant for the concentration of ores will be installed. Prof. Otto C. Burkhardt, as Professor Mining Engineering, is at the head of the department, and the course of study is designed to cover five years, leading in the fourth year to the degree of Bachelor of Science, and in the fifth year to the degree of Engineer of Mines (E. M.).

In January, Rev. Robert B. Nelson, of Newport, Ky., accepted a call to the Episcopal Church, succeeding Dr. A. J. Nock, who resigned in October, 1907, to take a charge in Detroit, Mich.

On Friday evening, January 17, the two literary societies joined in celebration of Maury-Lee Day, with the following program :

Prayer—W. E. Hubbert.

Introductory—"Origin of Maury-Lee Day," J. M. Smith (Maury).

Oration—"Gen. Lee as a College President," O. M. Bishop (Maury).

Declamation—"Matthew Fontaine Maury," J. M. Jewett (Lee).

Reading—"Traveller—Gen. Lee's War Horse," R. McBurney (Maury).

Vocal Solo—Prof. Abbot, accompanied by Mrs. Dunlap.

Oration—"Maury Honored Abroad, Neglected at Home," T. C. Howard (Lee).

Benediction—Rev. R. B. Nelson.

During the month of February the V. P. I. Glee Club, under the direction of Prof. Abbot, took a trip which included Randolph-Macon Woman's College and Sweet Briar Institute.

The Y. M. C. A. State Convention was held in Lynchburg February 20-23 inclusive. V. P. I. was represented by thirty-four delegates, including General Secretary A. S. Johnstone.

Among the speakers were Governor Glenn, of North Carolina, Mr. Fred B. Smith, of New York, and Dr. Carter Helm Jones, of Lynchburg.

During the last week of February the senior students in Electrical and Mechanical Engineering, accompanied by Prof. L. S. Randolph, took a trip to Roanoke and inspected a number of industrial plants there.

On Friday evening, February 29, the third annual banquet of the Agricultural Club was held in the College Dining Hall, with an attendance of about eighty students and twenty guests. Mr. F. E. Saunders acted as toastmaster, and in the responses the different classes were represented as follows : J. W. C. Catlett, '09; J. B. Skinner, '10; L. J. Killian, '11; Graduate Department, A. W. Drinkard, Jr. Judge Geo. E. Cassel, of Radford, was the principal speaker of the evening, and delivered an excellent address based on his experience as a farmer. He was followed by President Barringer, who responded to the toast "The Agriculturist," and Dr. Fletcher, who spoke on behalf of "The Experiment Station."

In the spring of 1908, the books, bulletins, and pamphlets which comprised the working library of the Agricultural Experiment Station and which up to this time were in the College Library, were moved to a room provided in the Agricultural Hall. Thus there was established the Virginia Agricultural Experiment Station Library, as a branch of the College Library.

On March 1, Mr. J. H. B. Fogleman was appointed Executive Clerk in the Experiment Station offices.

During the week ending April 2, a series of meetings conducted under the leadership of Mr. Clayton S. Cooper, Bible Study Secretary of the Y. M. C. A. International Committee, were largely attended by the students, and seemed to promote a deeper and more widespread interest in Bible study. A number of additional classes were formed and one hundred new men enrolled.

In April, Mr. J. E. Buck ('05) was employed by the Experiment Station to conduct a special investigation upon the Life History of the Codling Moth in Virginia. This work was

originally planned and started by State Entomologist, Prof. J. L. Phillips.

During the spring, the students attending the Presbyterian Church organized a club for the purposes of mutual benefit, promoting interest in church and Sunday-school, and bringing about a closer acquaintance among the students of that denomination. Similar action was taken later by the Baptist students.

May 1, Mr. W. A. P. Moncure, formerly Instructor in Mycology, accepted a position as Investigator of Horticultural By-Products, on the Experiment Station staff. He will continue his fermentation studies and also study the biology of canning.

On Wednesday, May 20, a party of students, accompanied by Prof. R. J. Holden, made a trip to Mountain Lake, in which pleasure was combined with geological research. The boys walked from Blacksburg to the Lake,, spent the night at the hotel, and returned next day over the N. & W., via Pembroke and Christiansburg.

June 12-21, the Southern Students' Conference met at Montreat, N. C., fifteen miles east of Asheville. Secretary A. S. Johnstone, with about ten other delegates, was in attendance.

On June 14, A. W. Drinkard, Jr., M. S. ('08), was appointed Assistant Horticulturist to the Experiment Station. Mr. Drinkard will devote his time entirely to research work under the Adams Fund. His special project is concerned with the development of fruit buds.

Among the speakers secured by the Y. M. C. A. during the session of 1907-'08 were Mr. Clayton S. Cooper and Mr. E. C. Mercer, of New York, Dr. J. Gray McAllister, President of Hampden-Sidney, Dr. A. L. Phillips, Messrs. W. T. Thompson, C. C. McNeill, and R. V. Taylor, Jr. The meetings were also addressed at different times by the college chaplains, members of the faculty, and by the General Secretary and the President of the Y. M. C. A.

Miss Mary G. Lacy, Librarian, studied at the New York State Library School, Albany, during part of June and July, and spent the latter part of the summer at Wytheville, Va.

On July 7, Miss Cora Gardner, of Christiansburg, accepted a position as stenographer in the office of Mr. J. L. Phillips, State Entomologist.

July 25, Mr. T. B. Hutcheson, Superintendent of Plat Experiments, visited Louisa and Bowling Green, Va., on business connected with the experiment stations at those points. The central Experiment Station at Blacksburg is conducting corn-breeding experiments at the local stations in Louisa, Bowling Green, Appomattox, and Chatham.

During the summer a model dairy barn and four smaller buildings for individual animals were erected just back of the Experiment Plats and adjoining the Smithfield pasture, for an experiment in the curative treatment of bovine tuberculosis, which was begun on August 1.

August 1, Miss Jenny L. Knight, of Leicester, Massachusetts, was employed to catalogue the Experiment Station Library, which she did most satisfactorily in two months' time. This catalogue, combined with that provided by the Office of Experiment Stations for State Station Bulletins and the cards sent out by the Department of Agriculture for the publications of that Department, make the resources of this Library fully available. The set of the Bulletins of the State Experiment Stations, presented by Mr. Wm. B. Alwood, has been completed and bound, and is ready for use by the Station workers.

Mr. Albert S. Johnstone, General Secretary of the Y. M. C. A., was married to Miss Anna Hill Watkins, August 5, 1908, at the First Baptist Church of Greenville, S. C.

On August 10, Dr. Spencer represented the Experiment Station at a conference of veterinarians and animal husbandrymen at Ames, Iowa. The object of the conference was to witness the success of the hog cholera vaccine developed by the U. S. Department of Agriculture. This vaccine will later be prepared and distributed by our Station.

During the summer, the Biological Department, formerly located in Science Hall, was moved to the new Agricultural Hall, where Prof. Smyth has now a convenient and commodious suite of rooms. This brings the Biological Department into closer touch with the Agricultural and Horticultural De-

partments, and with all the branches with which it is most intimately related.

On September 1, W. L. Mallory ('08) was appointed Assistant at the Experiment Station, and will have charge of the bovine tuberculosis and grazing work being carried on there.

Beginning with the present session, there will be no battery organization, but artillery drills will be performed by detachments detailed from the infantry companies. The two muzzle-loading cannon belonging to the government have been turned in, and the Institute has already received two new breech-loading steel field guns.

The Department of Physics will offer this session, for the first time, a course in Laboratory Physics to all students in their Freshman and Sophomore years. This, with three hours a week in both Freshman and Sophomore years devoted to Theoretical Physics and sixty hours during the session in the Senior year devoted to more advanced Laboratory Physics, will enable the men to attain an incomparably greater degree of efficiency in the work than under the old inadequate schedule. The floor space has been doubled and the equipment and corps of instructors has been increased.

Mr. R. M. Brown, of Princeton University, has been engaged as Athletic Director for the session of 1908-09. Mr. Brown was prominent in athletic circles while at Princeton, and has been very highly recommended to the V. P. I. Athletic Council. He will remain here throughout the session and devote himself to the coaching of the football, baseball, and track teams, and the general development of athletics.

The following bulletins have been issued by the Experiment Station since January 1, 1908 :

174—Potato Growing.

175—Tobacco Investigations.

176—Hog Feeding.

177—Tomato Breeding.

178—The Causes of the Heavy Loss of Lambs in 1908.

Circular 1. Sugar Beets in Virginia.

Circular 2. How the Experiment Station can be of Service to the Farmers of Virginia.

Circular 3. Dates of Seeding Winter Grains.

Circular 4. Selecting Seed Corn.

Beginning with Bulletin No. 175, most bulletins are now issued in two editions, an abridged edition—short, pithy and well-illustrated—for general distribution to farmers; and a complete edition for distribution to other experiment Station workers, and all others who request it.

ALUMNI NOTES

Class of 1875.

D. J. Rumbough, Lieut.-Col. First Field Artillery, address is 1727 P. St., N. W., Washington, D. C.

Dr. A. S. Lloyd, General Secretary of the Episcopal Board of Missions, New York City, was elected Bishop-Coadjutor of the Protestant Episcopal Diocese of Maryland on October 1, 1908. The following is an extract from the Baltimore Sun :

New York, Oct. 2.—On the authority of one very close to him, it is stated that there is not one chance in a hundred that Rev. Dr. Arthur S. Lloyd will accept the position of bishop-coadjutor of the Protestant Episcopal Diocese of Maryland, to which he was yesterday elected. Dr. Lloyd has nothing definite to say upon the subject, although he has received the official notice of his choice by the Maryland convention.

At the office of the Episcopal Board of Missions, of which he is the general secretary, he said today that nothing would be made known as to his decision for several days at least, and that it would first be conveyed to the committee of the diocese having charge of the matter.

Meanwhile, the man who has been offered the honor and place of bishop four times in five years continues persistently in the mission work that absorbs all his energies. He was at his desk today in the Mission House, on Fourth avenue, as is

usual when he is in the city, and this evening went to his home in East Orange, N. J.

Friends describe this former Virginia clergyman as a man who lives in his work. The question he has weighed on the three previous occasions when offered the bishoprics of Mississippi, Kentucky and Southern Virginia—the latter the land of his birth, training and early experience—is whether the duties are of greater importance than those of the general secretary of the mission board. He has always found the mission work heaviest in the balance. Members of the board believe there is no more important work in the country as bearing on the life and strength of the church than that of their general secretary.

The mission board may be well compared to the War Department of the church, and the general secretary's place to that of the Secretary of War. Its responsibilities, though heavy, are borne by Dr Lloyd with an unfailing cheerfulness that is described by the workers in contact with him as a constant source of encouragement. It is denied that he is in any sense showing weariness of his burden or is ready to lay it down for any lighter task.

At 51 he seems a man in his prime. His office door is sought daily not only by those concerned in the missionary work of the church, but by others who find in him a friend and confidant, and whose burdens he apparently delights in carrying. It is not unusual for 10 or 12 persons in a day to seek Dr. Lloyd's advice concerning their personal affairs, while a score or more consult him upon the business of the church missions.

Some whom he has attracted in his missionary journeys about the country come to him in New York to be married; some bring their children to him for baptism. He is a pastor-at-large to a parish as wide as the continent. Men are most numerous among his visitors. He has studied their needs and their temptations. At Norfolk his church was known as the Church of the Young Men. His advice, like his preaching, runs to practical things. Theology and doctrinal questions he indulges in seldom. Righteous living is more often his theme. His manner is easy and reminds the visitor little

of the conventional clergyman. He prefers speaking to writing, and has all the zeal and enthusiasm of a prophet when talking of his chosen work. He delivers on an average four sermons or addresses every week in the year on missionary topics.

If he has any pastime or diverting occupation it has not been discovered. Ten months of the year he is traveling about the country reminding Christians of their responsibility for the spread of the Gospel. Such leisure as his duties, while in this city permit, he spends in East Orange, N. J., which has been his home since he took up missionary duties eight years ago. His immediate family consists of his wife, who was Miss Lizzie Robertson Blackford, of Washington county, Virginia, four daughters, Mary Robertson, Elizabeth Blackford, Gay Blackford and Rebecca, the youngest, about 15 years old, and a son, who is a student in the Episcopal High School, in this city. The summer the family usually spends in the Virginia mountains. This year they were at Orkney Springs. While there Dr. Lloyd rests from other routine duties and prepares for the fall campaign by writing sermons.

As general secretary his duties are onerous. He is the executive officer of the board, which administers for the church in the United States its general missionary work. This is located in the domestic field in 40 dioceses besides 20 missionary districts, including Alaska, the Philippines, Hawaii and Porto Rico, and in the foreign field nine districts. There are on its staff in the home field 1,200 clergy beside laymen, deaconesses and nurses, and in the foreign field 200 American and 400 foreign workers, the principal missions being in China, Japan, Africa, Brazil, Cuba and Mexico. The work involves the expenditure of \$1,200,000 yearly. Since Dr. Lloyd became the general secretary, eight years ago, the growth of the mission fields has been so extensive that appropriations for their maintenance have been increased about 60 per cent.

The executive officer is the connecting link between the army of mission workers in all parts of the world and their base in this country, whence they draw for support and recruits to replace those who fall in action or are disabled by disease. The executive officer keeps in touch with the com-

manding generals, the missionary bishops in all parts of the world, keeping informed of the needs and progress of the forces and bringing their reports to the notice of the church at home.

Besides continual travel, speaking and correspondence with the home congregations to this end, he is concerned in the publication of a monthly magazine, the *Spirit of Missions*, which has been greatly improved of late years, and in the publication and distribution of about 1,000,000 pieces of missionary literature yearly. Once since entering mission work he has made a complete circuit of the world on a tour of inspection and encouragement to the workers in the more distant fields.

Besides four offers to become the head of different dioceses in this country, Dr. Lloyd has been urged to accept the pastorate of several large churches, all of which he has declined.

Class of 1878.

C. A. Weller is Vice-President of the Commercial Mining and Milling Co., and General Manager of the Cumberland Mining Co., his address being Knoxville, Tenn.

The Seaboard Air Line has awarded contracts to Burwell and Hillyer, of Jacksonville, Fla., of which firm B. Burwell is a member, for its terminal facilities to be built at Grassy Island, Tampa, Florida. The contract is for three wharves with a total length of 2,400 feet, and for a storage warehouse 75x400 feet.

Class of 1880.

After a very strenuous campaign, with two opponents, Mr. P. J. Holland and Col. G. C. Cabell, Hon. H. L. Maynard was renominated for Congress in the First District.

Class of 1882.

Dr. E. Land is Mayor of Virginia Beach, and also President of the Town Council.

Mr. F. M. Payne has moved to Binghamton, New York, where he is engaged in the manufacture of furniture. Mr. Payne is still connected with the Frank Payne Shoe Co.,

Charleston, W. Va. Address, 28 Front St., Binghamton, N. Y.

Dr. J. E. Miller, Veterinarian and Farmer, Gainesville, Ga., delivered an address on Corn Breeding before the students of the University of Georgia, Athens, Ga., also an address on Parturient-Meningitis before the Georgia State Veterinary Medical Association on September 3, 1908. This is a new disease and only one other case has been noted, and that was by Dr. A. Jasme, Savannah, Ga. Dr. Miller is now doing some work on Cotton and Corn Breeding.

Dr. S. A. Reynolds graduated in medicine from the Medical College of Virginia, with the class of 1887, and was awarded the Faculty prize for the best class standing. Was a delegate to the National Republican Convention which met in Chicago in 1904. Dr. Reynolds performed a successful Caesarean operation in country practice in 1905. Was appointed by Governor Swanson a delegate to the International Congress on Tuberculosis in 1908. Is now a member of the Congressional Committee Fifth District, and Chairman of Republican Committee for Pittsylvania County. Dr. Reynolds presided at the recent Republican District Convention, which nominated a candidate for Congress.

E. Anderson, Capt. U. S. Army, is now stationed at Fort Leavenworth, Kans. The following is an extract taken from the Indianapolis Star of Sept. 21 : "In providing food for the soldiers during the maneuver season at the camp of instruction, Capt. Edward Anderson, chief commissary on Brig. Gen. W. H. Carter's Staff, spent \$40,000. He is prominent in army circles and is among the most popular officers at the post. Capt. Anderson has delivered a series of lectures on "The Substance Department of the Government" to the commissaries of the several State troops. He proved himself an able lecturer as well as an efficient commissary chief."

R. J. Noell was appointed to the Board of Visitors of the Virginia Polytechnic Institute by Governor Swanson in June.

Class of 1885.

A. I. Harless, attorney-at-law, Christiansburg, Va., writes : "(About myself there is) nothing especially interesting, except it be to say that I am simply a hard-working, plodding lawyer, which I believe is better than genius. The genius of close application will as surely bring reward as the fulfilment of any law."

Class of 1886.

W. A. Murrill, Assistant Director of the New York Botanical Gardens, lectured on Forest Fungi before the Biltmore School of Forestry for two weeks, beginning July 13, 1908. Late in the same month he paid a short visit to his parents at Blacksburg. Instead of going to Europe, Dr. Murrill expects to spend the winter in Jamaica, at the laboratory at Cinchona and elsewhere, studying the fungi; he will be accompanied and assisted by his wife. Dr. Murrill has recently been appointed joint editor of North American Flora, and will have charge of the cryptogramic portion of this work.

A very interesting and able article appeared in the New York Times of September 4, 1908, in which Dr. W. A. Murrill takes decided issue with the statement by Professor Francis Darwin, the son of the great naturalist, in his Presidential address at the opening meeting of the British Association in Dublin, to the effect that plants might be classed as animals in the way they respond to touch, and that plants have memory and can develop habits.

Class of 1887.

H. Wood is now hydrographic surveyor for the Naval Observatory, Washington, D. C.

Class of 1889.

G. W. Thompson is now manager of the house cleaning department of the Blaisdell Machinery Co., Bradford, Pa. His address is 15 Elm St., Bradford, Pa.

Class of 1890.

At a meeting of the State Geological Survey Commission, Richmond, Va., September 23, 1908, Dr. T. L. Watson, Professor of Economic Geology at the University of Virginia, was appointed State Geologist.

G. H. Derrick is the Consulting Engineer for the City of Pulaski, Va., and is now installing a system of water-works.

Class of 1893.

E. P. Miner is at present assistant in St. Luke's Church,

Norfolk, Va., as well as rector of the Glebe Church, Driver, Nansemond Co., Va., St. Mark's Church, Lambert's Point, Norfolk, Va., and the Galilee Church, Virginia Beach, Va. His address is 273 Bute St., Norfolk, Va.

Class of 1895.

L. D. Kline, President of the General Alumni Association, was appointed to the Board of Visitors of the Virginia Polytechnic Institute, by Governor Swanson in June. Mr. Kline was elected Secretary and Treasurer of the Virginia Duroc Breeders' Association which was organized in Richmond, Va., October 7, 1908.

Class of 1896.

T. D. Martin is a dealer in leaf tobacco, Florence, S. C.

Class of 1897.

Few among our more recent alumni will need to be told that J. H. Woolwine is now a merchant at Blacksburg, one of the most popular, be it said, in this thriving little college town of ours.

L. Priddy begs leave to announce to his friends and clients that he has opened offices at 42 Broadway, New York City, Suite 501-524, and is in a position to handle any and every kind of insurance. Telephone 1477 Broad. This announcement is taken from a little book which Mr. Priddy has been mailing to his friends.

W. R. Karr is engaged in farming; his address is R. F. D. No. 1, Blacksburg, Va.

Class of 1898.

J. A. Burruss has recently been elected President of the State Normal and Industrial School at Harrisonburg, Va. A sketch of Mr. Burruss's career is reserved for a subsequent number of the Bulletin. The following is an article from the Harrisonburg Daily Times :

"Julian A. Burruss, of Richmond, was last night elected president of the new Female Normal School to be estab-

lished in this place. The selection was made after a report of the special committee on selection of president which stated that they had investigated twenty-five names. Out of the twenty-five the committee reported three names to the board, any one of whom they thought would make a suitable selection. They were Prof. J. H. Bader, of this county, Dr. E. D. Murdaugh, of Frostburg, Md., and Mr. Burruss. After the submission of these names the Board went into executive session and took several informal ballots. It soon developed that Mr. Burruss was considerably in the lead, and on the only formal ballot he received the vote of all nine members present.

The salary of the president-elect is to be \$2,500 payable monthly and he is to be furnished a house as soon as the Newman residence is available for the Board, which will be on April 1 next. The term of the president is to commence on next Wednesday, or as soon thereafter as practicable. Whenever on official business the president's traveling expenses are to be paid.

TO INSPECT OTHER SCHOOLS

It is expected that the President will visit Harrisonburg as soon as possible and get acquainted with the local county superintendents, the school trustees and the teachers, so as to put himself in line to get as much patronage as possible as soon as the school is opened. He is also expected to go on a tour of inspection to other States to inspect other schools, both as to architecture and as to the course of study. On this trip he will probably be accompanied by an architect who, however, will go without compensation from the board.

APPROPRIATIONS FOR SITE

The sum of \$18,500 was appropriated to pay for the site for the school as soon as the necessary papers are prepared and delivered. It will be remembered that local board purchased 41 acres of land from the Newman place on South Main street. This sale is subject to confirmation by the State Board of Education, which met last night at Richmond, but it is practically certain that the State Board will confirm

the action of the Board of Visitors. The Board also appropriated \$1,000 for incidental expenses.

Those present at the meeting today were State Senators F. W. King, George B. Keezell, D. P. Halsey, Doctors Stone and Pettitt, Messrs. Weaver, Moore, Snyder and Carpenter."

O F. Whitehurst has held the following positions since graduating from the V. P. I. : First, section foreman, testing department, General Electric Co.; second, assistant, lighting engineering department, G. E. Co., and assistant, Electrical and Mechanical Engineer for the Illinois Traction System. Mr. Whitehurst is now assisting in the valuation of \$50,000,000 worth of Chicago property; his address is care of the H. M. Byllesley Co., Chicago, Ill. Mr. Whitehurst says of himself that he is "bald-headed, a confirmed bachelor, and will be glad to hear from any of the fellows."

C. W. Cochran, Assistant Engineer, Maintenance of Way, C. C. C. & St. Louis Ry. Address 218 N. Market St., Galion, Ohio. Mr. Cochran writes: "Best wishes for the success of the Alumni Association and good luck to all its members."

Class of 1899.

W. D. Ligon is consulting engineer with the Westinghouse Elect. & Mfg. Co., Syracuse, N. Y.; his address is 906 University Block, Syracuse. His time at present is devoted to general engineering work, such as the designing gas, steam, and hydro-electric power plants, as well as electric railways.

Mr. Ligon was married on December 9, 1903, to Miss Annie de La Tour, of Lynchburg, Va.; they have three children: Juliette A., Marguerite E., and William D., Jr.

B. S. Johnson, of the Furlow Draft Gear Co., of Baltimore, Md., read a paper before the New York R. R. Club, April 17, 1908, on the subject of "Draft Gears." Mr. Johnson has also designed and patented a Friction Draft Gear for freight equipment.

Class of 1900.

J. A. Waddell, Jr., is superintendent of the Spencer

Heater Co., and Vice-President of the Outlook Coal Co.; address, 824 Mowroe Ave., Scranton, Pa.

R. B. Bean, formerly assistant professor of anatomy in the Philippine Medical School, Manila, P. I., was promoted on July 1, 1908, to the rank of associate professor. In January, 1908, Mr. Bean delivered an address on Mendelian Heredity at the annual meeting of the Philippine Islands Medical Association; during the summer vacation, 1908, he investigated the Benguet Igorots, and in April and May, 1908, lectured on Heredity before the Philippine Islands Teachers' Assembly at Bagnio, Province of Benguet. Mr. and Mrs. Bean are to be congratulated upon the advent of a daughter, the first born, Mary Archer, April 9, 1908.

Class of 1901.

Ferdinand Powell is general claim agent of the Carolina, Clinchfield and Ohio Railway, with offices at Johnson City, Tennessee.

Clarence Derrick is engineer-draftsman for the Isthmian Canal Commission; his address is 1411 Tenth St., N. W., Washington, D. C.

T. G. Wood (M. S., 1903) has recently been appointed professor of agriculture and director of experimental and demonstration work in the Burkeville High School. He is also director, secretary, and treasurer of the Burkeville Co-operative Creamery Association, Inc. A sketch of Mr. Wood's life and work will appear in a subsequent number of the Bulletin.

The engagement of W. S. Bralley, of the General Electric Co., Schenectady, N. Y., to Miss Clara Antoinette Goetz has been announced.

J. C. Brooke, member of the firm of Carter and Brooke, attorneys-at-law, Fendal Building, Washington, D. C., was married March 31, 1908, to Miss Isabelle Faris, of Washington, D. C. Residence, 427 Fourth St., N. W.

W. A. P. Moncure is connected with the Experiment Station, Blacksburg, Virginia.

C. P. Miles, Associate Professor of Modern Languages, V. P. I., Blacksburg, Va.

J. M. Hicks is with the Red Jacket Consolidated Coal and Coke Co., Inc., Red Jacket, Mingo County, West Va.

W. M. Brodie, Associate in Mathematics and First Assistant Commandant of Cadets, V. P. I., pursued a Post-Graduate Course in Mathematics at Columbia University, New York City, during the past summer.

Class of 1902.

R. T. Brooke should be addressed in care of the General Electric Company, Empire Building, Atlanta, Georgia. He is at present salesman in the power and mining department of this company.

A book on Metallurgy has just been published by the Chemical Publishing Co., Easton, Pa., by H. Wysor, Assistant Professor of Analytical Chemical and Metallurgy at Lafayette College, Easton, Pa.

"It is a condensed text-book for college students, being a general treatise on metals, fuels, refractory materials, ore dressing and furnace construction. There is the description of typical processes in the metallurgy of iron, copper, lead, zinc, tin, mercury, silver, gold, aluminum, manganese, nickel and rare metals, with special attention paid to the principles involved in metallurgical processes. It is perhaps the first book of this scope published in this country."

P. S. Murrill, Principal Blacksburg High School, Blacksburg, Va.

J. Bolton, Consulting Civil Engineer, 1100-6 Brown-Marx Building, Birmingham, Ala.

Mr. and Mrs. C. L. Cook are to be congratulated on the birth of their first child, a daughter, on May 25, 1908.

The following extract is from the Baltimore Sun :

"Mr. F. Donaldson Brown, who for several years was manager of the Sprague Electric Company's Baltimore office, has gone to Charleston, W. Va., and expects to make that his permanent home and headquarters. He will become superintendent of the Aerial Tramway Company, which operates a device to handle coal in the air.

"Mr. Brown is a member of the Baltimore Club, the Bachelors and Junior Cotillions, and was prominent in the younger

set of Baltimore society. He is a son of Col. J. Willcox Brown, who was for a number of years an active banker."

The following account of the death of Dr. A. H. Sayers is taken from the Baltimore Sun :

"Bad blood between Dr. H. Howard Sayers, a wealthy physician of North Fork, W. Va., and Wesley Wilkes, a well-known insurance man of Bluefield, led to a tragedy on a Norfolk and Western train at Keystone Station yesterday. Dr. Sayers is said to have been the aggressor. Wilkes secured a gun, with which he shot the Doctor through the left side, death resulting instantly.

"Three months ago Wilkes filed charges against Dr. Sayers in the Elks lodge, of which both are members. This led to Dr. Sayers' dismissal, and he has since declared that he would thrash Wilkes on sight. They met in a car on the Norfolk and Western train, and Sayers, it is alleged, proceeded to thrash Wilkes thoroughly, beating him with his fists and finally forcing him down across the seat. Wilkes succeeded in getting into the next car, but Dr. Sayers followed him and renewed the battle.

"According to the report, while Dr. Sayers held Wilkes on the floor battering his face Wilkes rummaged in his grip, drew out a revolver and twisted his body so that the muzzle rested against Sayers' left side. When he fired Dr. Sayers' body sagged down, the blood staining Wilkes' clothing. Wilkes surrendered to officers.

"Sayers was a prominent young practitioner and the son of the late Dr. H. H. Sayers, an eminent physician of Wytheville, Virginia."

A. L. Haskell is now Commercial Engineer for the National Carbon Co., Cleveland, Ohio.

G. R. Talcott, Resident Engineer, Augusta Construction Co., Hazlehurst, Ga. Permanent address 1724 Grove Ave., Richmond, Va.

H. G. McCormick is pursuing Post Graduate Course at V. P. I., Blacksburg, Va.

Class of 1903.

S. M. Spiller is connected with the engineering depart-

IN MEMORIAM

A. H. SAYERS, '02

ment of the Western Electric Co., Chicago. His present address is Wytheville, Virginia.

J. P. Palmer, who is connected with the General Electric Co., Schenectady, N. Y., is rejoicing over the birth of a daughter on June 20, 1908.

W. L. Blair, formerly connected with the Wisconsin Engine Co., Corliss, Wis., is living at present in Rondo, Virginia, where, on February 16, 1908, he married Miss Lucy Belle Anderson.

Class of 1904.

C. C. Campbell is superintendent of the Vesuvius Mining Co., Greenville, Va.

J. T. Neely, Structural Draftsman, with the McClintock-Marshall Construction Co., Pittsburg, Pa., has been engaged since January 2nd, 1906, on the structural drawings, and has also done practical work in the construction of the American Sugar Refining Company's new immense plant in New Orleans, La. Mr. Neely will return shortly to the main office in Pittsburg, Pa. Home address, 202 North St., Portsmouth, Virginia.

G. C. Robeson is at present a student in the department of architecture at the University of Pennsylvania. His address is 373 Hopkinson Dormitory, Univ. of Penn., Philadelphia, Pennsylvania.

J. E. Buck is engaged upon the Codling Moth Investigation now being made at the Virginia Experiment Station.

W. E. Wine, Draughtsman, may be addressed at 319 South Third St., Wilmington, N. C.

H. L. Correll is furnace foreman of the furnace at Radford, Virginia.

F. N. Gantt is now connected with the commercial lighting department of the General Electric Company, Schenectady, N. Y.; address 7 North College St., Schenectady.

J. L. Hortenstine, Junior United States Engineer, was transferred in February last from the lock construction at Plaquemine, La., to the improvement work on the Southwest Pass of the Mississippi River. His present address is Burrwood, La.

F. L. Robeson is Superintendent of the Farmville Manufacturing Co. Address, 500 Buffalo St., Farmville, Virginia.

D. E. Wright is now Engineer in charge of Municipal Engineering work, Gargona District, Canal Zone. Address, Gargona, C. J.

Mr. Wright writes that, "Mr. J. W. Hortenstine and myself are the only two members left of the V. P. I. Pioneer Corps that came to the Isthmus June 1, 1904. We have seen a genuine post-hole converted into a healthy country during our stay here. We have no complaint to offer against the Government, for they are giving the whole outfit the best there is to be had."

L. P. Bell, address for the present is Staunton, Va.

S. T. Hughes, Jr., Superintendent, Philip Morris & Co., Ltd., 402 West Broadway, New York City.

Class of 1905.

C. A. Yarrington is in the employ of the Westinghouse Electric & Manufacturing Company, Pittsburg, Pa.; address, 301 Gray Building, Pittsburg.

W. S. Blue has recently been transferred to the Kansas City sales office of the Westinghouse Electric and Manufacturing Co.; his address is 409 New England Building, Kansas City, Mo.

D. G. Robson has also been transferred to the Kansas City sales office of the Westinghouse Electric Co., address 409 New England Building, Kansas City, Mo.

R. S. Royer is now senior member of the firm of Royer and Wood, Civil and Mechanical Engineers, Roanoke, Va. His address is Box 556, Roanoke, Va.

R. A. Myers is a civil engineer with the Southern Power Company, and is at present engaged in hydro-electrical construction at Great Falls, S. C. He should be addressed, however, at the general office of the company, Charlotte, N. C.

After graduation, E. P. Wood entered the United States College of Veterinary Surgeons, from which institution he graduated on April 1, 1908, with the degree of Doctor of Veterinary Science, and in which he is now professor of osteology. His address is 222 C. St., N. W., Washington, D. C.

J. E. Bell is Assistant Engineer, U. S. Reclamation Service, Shastone Dam. Address, Care U. S. R. S., Cody, Wyoming.

R. B. Watts, with J. E. Lane & Co., Railroad Contractors; address, Stony Point, Va.

J. D. Jones was transferred on July 4, 1907, from Western Electric Company, New York City, to the Engineering Dept. of the same company in Chicago, Ill. Address 1140 S. Laundale Ave., Chicago, Ill., or care of Western Electric Co., Hawthorne, Ill.

Class of 1906.

T. H. Wood is now assistant professor of chemistry and student at the United States College of Veterinary Surgeons; address, 222 C. St., N. W., Washington, D. C.

T. Garnett is connected with the Westinghouse Electric Co.; his address is 801 Holland Ave., Wilksburg, Pa.

C. M. Schaefer is with the Westinghouse Electric and Manufacturing Co., Pittsburg, Pa.; address 801 Holland Ave., Wilksburg, Pa. Mr. Schaefer "has been working for the past year on the electrification of the New York, New Haven and Hartford Ry."

C. H. Moorefield, Instructor, Civil Engineering, V. P. I., Blacksburg, Va.

During the past summer, J. A. Armstrong was tutor at Fassifern Farm, Hot Springs, Va. Is now a student at the Union Theological Seminary, Richmond, Va.

A. D. Williams was transferred on September 20, 1908, from the U. S. Geological Survey, and is now a civil engineer in the Philippine Civil Service. He will sail from San Francisco, Cal., for Manila on September 25. Address Manila, P. I.

G. H. Cunningham completed the course in Mechanical Engineering at Cornell University in June and received the degree of Mechanical Engineer. Address Brandy Station, Virginia.

J. W. Grandy, Jr., since graduation has been with W. A. Hammond, Florist, Richmond, Va. Mr. Grandy writes: "After October 1st, 1908, I will open a floral establishment for myself in Norfolk, Va., and at all times will be very glad to receive orders from and to see all V. P. I. men. Address 251 Granby St."

R. R. Henley has been transferred to U. S. Food Labora-

tory, Chicago, Ill. Address 4108 Indiana Ave., Chicago, Ill.

S. H. Lee is pursuing Post Graduate course at V. P. I., Blacksburg, Va.

Class of 1907.

B. Anderson is Principal Tomahawk Graded School, Rondo, Va.

The present address of W. E. Hannah, Jr., is 64 Whiting St., Lynn, Mass.

L. R. Maddox may be addressed at Body Camp, Virginia.

S. E. Carnahan is now engaged in farming at Hiwassee, Va.

A. W. Grant, Jr., is a student in Sibley College of Mechanical Engineering, Cornell University; his address is 110 Edgemoor Lane, Ithaca, N. Y.

J. R. Kirk is with the Eng. Deepwater Lumber Co., Moncure, N. C.

H. S. Stahl, Instructor in Botany, V. P. I., Blacksburg, Va.

F. S. Holmes, Assistant Commandant, V. P. I., Blacksburg, Va.

P. S. Blandford, Principal, Ledbetter Graded and High School, Meherrin, Va., R. F. D. No. 1.

H. V. Anderson, pursuing Post Graduate Course, V. P. I., Blacksburg, Va.

H. H. Varner is teaching in the West Texas Military Academy, San Antonio, Texas.

J. B. Maynard has just received commission as Second Lieutenant and will enter the U. S. Army. Address, Portsmouth, Va.

I. T. Holt, address is 251 Main St., Norfolk, Va.

D. J. Wright is a student in the Dept. of Railroad Engineering, University of Illinois, Champaign, Ill. Address 510 S. Goodwin St., Urbana, Ill.

C. L. Paul is employed by the Manchester Transparent Ice Works of Manchester, Va.

W. D. Scott was appointed last summer to a Fellowship in the Engineering Experiment Station at the University of Illinois, Champaign, Ill.

W. J. Lamon is pursuing Post Graduate Course and As-

stant in Surveying at V. P. I., Blacksburg, Va.

G. E. Bushnell is now with the firm of J. E. Bushnell & Sons, Merchants, Salem, Va.

W. B. Livesay is pursuing Post Graduate Course and Assistant in Drawing, V. P. I., Blacksburg, Va.

W. P. Boatwright is Second Lieutenant in the U. S. Army.

R. E. M. Goolrick is Second Lieutenant in the U. S. Army.

Class of 1908.

S. P. Coker, Manager, Burkeville Co-operative Creamery; address, Box 143, Burkeville, Va.

J. H. Harvell, Assistant in Mathematics and English, Apprentice School, V. P. I., Blacksburg, Va. Also pursuing Graduate work.

J. D. Powell, Draughtsman, Virginian Ry. Address, 508 London St., Portsmouth, Va.; or Virginian Railway Offices, Bank of Commerce Building, Norfolk, Va.

R. McBurney, Assistant in Chemistry, V. P. I., Blacksburg, Va.

C. B. Walker, Assistant in Chemistry, V. P. I., Blacksburg, Va.

W. S. Martin, Assistant in Chemistry, V. P. I., Blacksburg, Virginia.

J. H. Wilson has charge of his father's farm near Danville, Va. Address, Danville, Va.

J. H. Galt, Cadet Engineer with the Public Service Corporation of New Jersey, Gas Department. Address 573 High St., Newark, N. J.

C. M. Smith is with the Virginian Railway. Address, Princeton, W. Va.

H. G. Bonham, Post Graduate, V. P. I., Blacksburg, Va.

A. N. Crowder, Assistant in Shops and pursuing Post Graduate Course, V. P. I., Blacksburg, Va.

T. O. Day, Assistant Commandant, V. P. I., Blacksburg, Va.

W. Ives, pursuing Post Graduate Course, V. P. I., Blacksburg, Va.

R. A. Paine is now a graduate student and assistant at the Virginia Polytechnic Institute.

W. L. Mallory is assistant in animal husbandry, Virginia Experiment Station, Blacksburg, Va.

G. C. Stone is at present attending the V. P. I., as a graduate student in civil engineering and Third Assistant Commandant.

R. S. Hoffman has a position with the Erie Railroad Co., Susquehanna, Pa.

A. T. Poehlmann is clerk for the firm of L. A. Poehlmann & Sons, Baltimore, Md. His home address is 41 South Fulton Ave., Baltimore.

J. M. Smith is student-secretary of the Tennessee Young Men's Christian Association; address, 150 Fourth Ave., North, Nashville, Tenn.

L. F. Schroeder is connected with the Westinghouse Electric and Manufacturing Co. His address is 17 Relay Place, Stamford, Conn. Mr. Schroeder is now "working on the electrification of the New York, New Haven and Hartford Ry."

R. P. A. Johnson, land examiner in the forest service of the United States, spent the past summer in Montana, with Missoula as headquarters. His home address is 613 North Washington St., Alexandria, Pa.

J. D. Waldrop, Principal, Tom's Brook High School; address, Box 73, Tom's Brook, Va.

L. E. Brown, Jr., Assistant Cashier for J. Thompson Brown and Co., Real Estate Agents and Brokers, Richmond, Va.

J. C. Mitchell, Assistant Apprentice School, and pursuing Post Graduate Course, V. P. I., Blacksburg, Va.

C. H. Fisher, with Virginian Ry, Norfolk, Va.

C. P. Millard, with DuPont Powder Co., Wilmington, Del.

J. C. C. Price was married to Miss Lula Grace Caley the 28th of October, 1908, at Rural Retreat, Va. Address, Blacksburg, Va.

T. W. Clapp, Professor of Mathematics, Lees-McRae Institute, Plumtree, N. C.

P. H. Noland is teaching Physics at the West Texas Military Academy, San Antonio, Texas.

Virginia Polytechnic Institute

The State Agricultural and Mechanical College

INFORMATION DESIRED FROM ALUMNI FOR BULLETIN WHICH WILL BE PUBLISHED JANUARY 1, 1909

Each Alumnus of the Virginia Polytechnic Institute is requested to fill out the following form and mail it to Dr. F. D. Wilson, Blacksburg, Va., if the items have not already appeared in Alumni Registers or Institute Bulletins.

Date_____

Name in full_____

Year of graduation_____

Present position_____

Present address_____

Married (when, where, to whom)_____

Notes of interest in regard to yourself or any member of
the Association_____

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BULLETIN COMMITTEE

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SUBSCRIPTION PRICE, \$1.00 PER ANNUM

Communications should be addressed to

Robert T. Ellett, *Business Manager*

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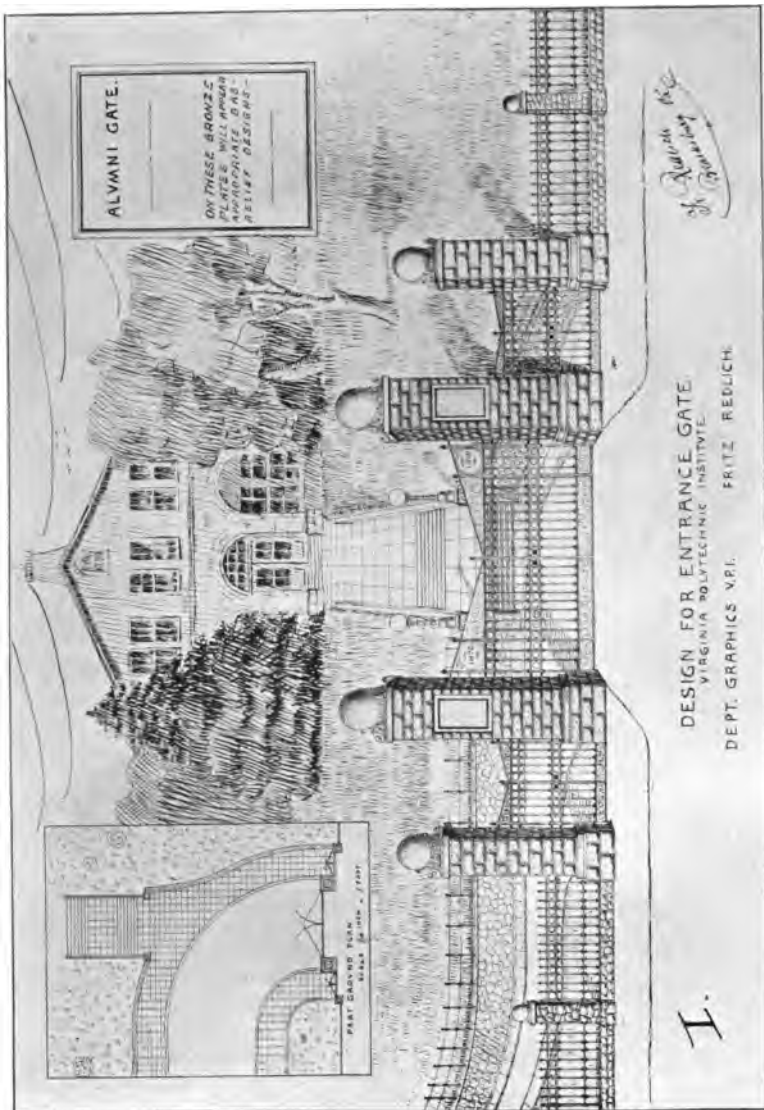


PLATE I
DESIGN OF V. P. I. ALUMNI GATE

BULLETIN
OF THE
Virginia Polytechnic Institute
The State Agricultural and Mechanical College



Alumni Number
January
1910



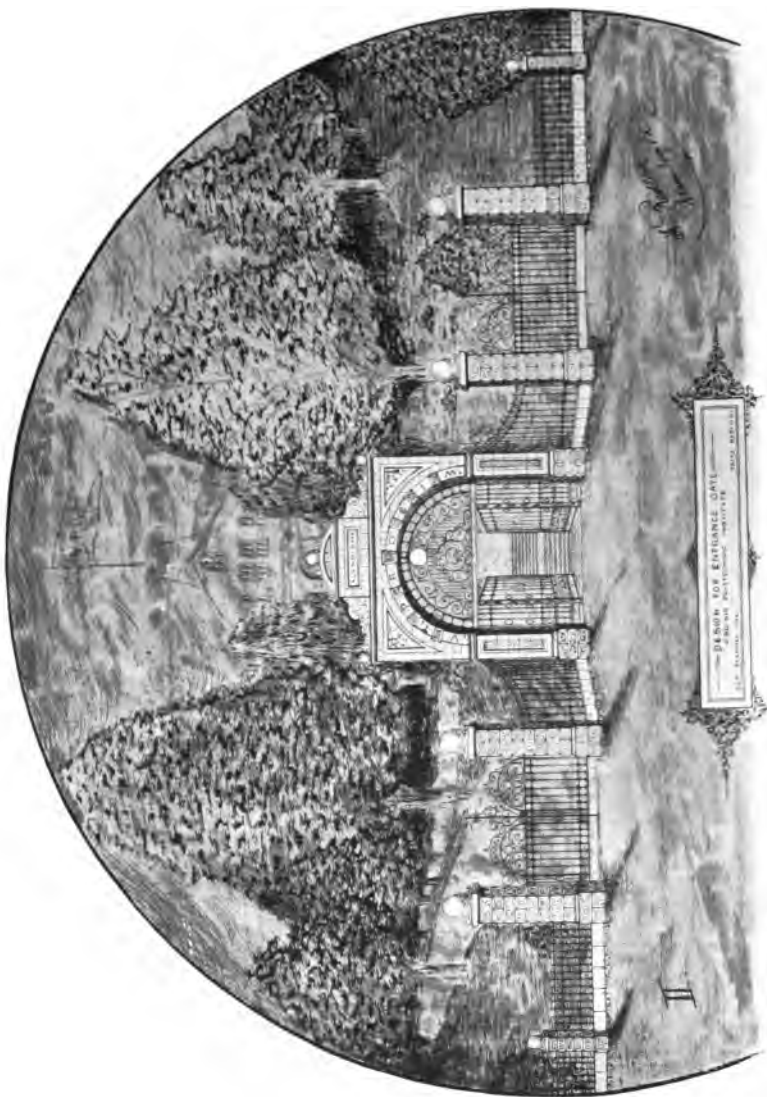


PLATE II
DESIGN OF V. P. I. ALUMNI GATE

Virginia Polytechnic Institute

BULLETIN

Published Quarterly by the Virginia Polytechnic Institute

VOL. III

JANUARY, 1910

NUMBER 1

THE V. P. I. ALUMNI GATE

BY J. S. A. JOHNSON, SECRETARY-TREASURER OF THE GATE
FUND COMMITTEE

Professor W. H. Rasche took the matter of an appropriate design for the Alumni Gate in hand at its inception, and the Secretary of the Gate Fund Committee has been guided largely by him in the choice of the designs to be reproduced in the Alumni Number of the *Bulletin*. Most of the designs were made under his direction, some eight or ten in all being submitted. There are presented herewith cuts of four designs.

The first three designs, illustrated in plates I, II and III, were made by Professor Fritz Redlich, of the Department of Graphics of this Institute. The fourth design is the work of Mr. Geo. C. Robeson, of the University of Pennsylvania.

The committee is also greatly indebted to Mr. R. J. Neely, Mr. W. E. Wine and Professor H. Gudheim, for valuable suggestions, sketches and complete designs. From all of these some good ideas have been secured. The designs of Professor Gudheim were considered as being too classic for an institution of this kind. The design submitted by Mr. Wine was not sufficiently elaborate.

It is the desire of the committee to have an expression of opinion from members of the Alumni Association, as well as from all others who contribute towards the erection of the gate. It is suggested that each person concerned notify the secretary as to his preference of the designs.

Some objections have been raised to locating the main entrance to the campus at the place indicated in the cuts (at the foot of Main

Street and in front of the Shops). With a little reflection, however, it will be seen that this is the most appropriate site. It would, of course, be highly desirable to have the main entrance located on the axis of symmetry of the campus, if there were only an important street of the town, or even any street at all, leading directly to this point. In the absence of such a street, the gate would be seldom visited and less frequently used.

It is hoped that work may be started on the gate this spring, so that it may be finished by commencement, even if the driveway can not be completed by that time. When it comes to the erection of this memorial, we may consider ourselves fortunate in having the benefit of the practical knowledge and ability of Professor Redlich. He has kindly consented to assist in the construction of the gate, whether one of his designs is finally decided upon or not. Again, the fact that much of the iron work can be done in our shops will make the gate mean all the more to us.

The sum of \$494.00 has been subscribed to date. Of this amount, \$213.00 has been paid. There has been expended the sum of \$27.00 as follows: \$16.00 for 800 two-cent stamps, \$8.00 for printing circular letter, and \$3.00 for cut and article in the *Virginia Tech*. The sum of \$150.00 has been deposited in the savings department of the Bank of Blacksburg, on interest at 3 per cent., leaving \$36.00 in the same bank on open account.

DESCRIPTIONS OF THE DESIGNS

Plate I

In this design, the four columns are of native limestone. The two center columns are hollow and have the following dimensions: three feet square, fourteen feet high. The two side columns are twenty inches square by ten feet in height. All columns are surmounted by bronze spheres. There will appear, on the fronts of the two large columns, bronze tablets with appropriate bas-relief designs.

The driveway is planned here for the center. This will, however, necessitate the building of a retaining wall not less than five feet high. This retaining wall, together with all the accompanying earth work, will cost not less than \$700.00, it is estimated.

The design provides for sidewalks on both sides of the driveway.

Estimated cost, including concrete or cement floor work and the retaining wall, \$1,400.00.

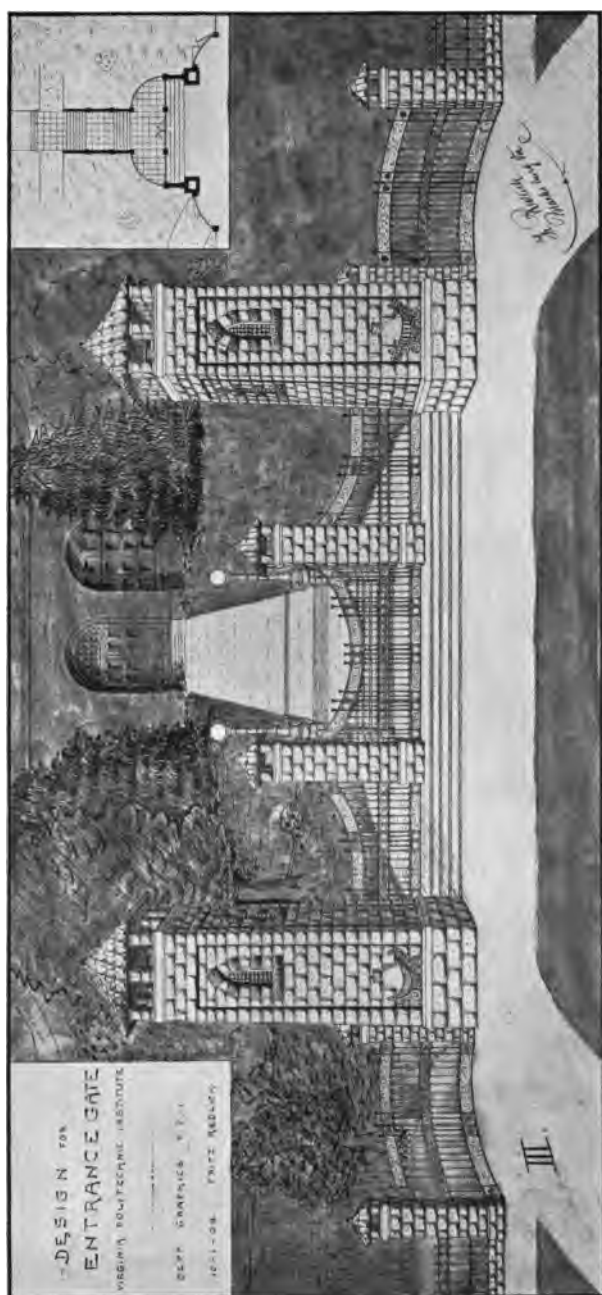


PLATE III
 DESIGN OF V. P. I. ALUMNI GATE



PLATE IV
DESIGN OF V. P. I. ALUMNI GATE

Plate II

Red sandstone is the material out of which the columns in this design are to be made. Here, again, bronze balls will appear on the tops of all columns. The bronze plates on the main columns provide for bas-reliefs, as in the preceding design. The four large columns are twenty inches square by twelve feet high.

This design places the driveway at the left and, in this way, avoids the necessity of a retaining wall.

Total cost, including cement or concrete floor work, \$1,800.00. If native limestone were used here instead of red sandstone, the cost would be \$1,500.00.

Plate III

All stone work in this design is to be of native limestone, with the exception of that around the Gothic windows, which will be of red sandstone. The four large columns are hollow. They are six feet square and twenty feet high to the tops of their roofs. The small columns are twenty inches square and twelve and ten feet high, respectively. The roofs are covered with red tiling.

The small stained-glass windows, and the fountains in front, add very much to this design.

Total estimated cost, \$2,000.00.

Plate IV

In this design, the author has very tastefully combined simplicity with beauty and architectural style. The pylons are to be made of pressed bricks and are to be covered with tile, selected for color. The pedestrian gateways are placed in these pylons.

At the sides of the pylons, as is illustrated in the upper corners of the cut, there will be, on one side, a plate bearing an appropriate inscription, while a small stained-glass window will be placed on the other side.

The design can be modified so as to prevent the necessity of a retaining wall.

Estimated cost, including retaining wall, \$1,200.00.

The driveway, from the gate to the front of the Academic Buildings, will, it is estimated, cost about \$500.00.

IN MEMORIAM

C. P. MUNCY, '75
W. F. PAGE, '75
J. L. RADFORD, '75
G. A. BOWMAN, '76
A. L. BURKS, '76
S. P. COSTIN, '76
S. M. McLAUGHLIN, '76
F. P. PRICE, '76
W. NELSON, '77
O. J. RADCLIFFE, '77
W. R. BOGGS, '77
A. BOGGS, '78
W. H. PERKINSON, '78
B. R. BRYANT, '78
J. G. TANNER, '79
S. W. PAUL, '79
L. B. HITE, '79
T. H. WHITE, '79
C. H. BOLEN, '80
W. S. MARSHALL, '81
S. A. KINNENAR, '82
W. J. KENDAL, '82
W. MULLER, '83

J. R. WILSON, '83
A. E. F. PRICE, '86
H. C. GUERRANT, '87
R. T. BRAY, '88
A. S. MALLORY, '91
L. W. JERRELL, '94
R. P. WHITTLE, '94
J. C. DABNEY, '95
J. G. HEAVENER, '95
W. A. PERRY, '95
J. G. GUERRANT, '97
J. M. McBRYDE, Jr., '97
W. N. JONES, Jr., '99
M. A. SALE, '99
W. F. BELL, '99
A. H. SAYERS, '02
W. E. VAUGHT, '03
E. W. WHISNANT, '03
R. I. ARCHER, '03
W. M. CHILTON, '04
G. W. COOK, '04
J. H. WILSON, '07
W. S. MARTIN, '08

A LIST OF GRADUATES
OF THE
VIRGINIA POLYTECHNIC INSTITUTE
(STATE AGRICULTURAL AND MECHANICAL COLLEGE)

The information concerning each alumnus is arranged in the following order: Name, Matriculated from, Occupation, Present Address.

CLASS 1875—GRADUATES

COURSE OF AGRICULTURE

- E. G. BAGLEY, JR. McFarland's, Lunenburg Co., Va.; Cashier and Bookkeeper for Acree's Warehouse, Danville, Va.
- W. K. BOSWELL, JR. Pine View, Fauquier Co., Va.; Cloth Commission, Baltimore; Farming; Waterbury, Md.
- W. E. FRANKLIN. Concord Depot, Campbell Co., Va.; Merchant and Farmer; Concord Depot, Va.
- C. S. HARRIS. Berryville, Clarke Co., Va.; Surveyor; Bowles, Va.
- F. M. LOVE. Hamilton, Loudoun Co., Va.; Farmer, Grazer and Breeder of Sheep and Draft Horses; Hamilton, Va.
- C. P. MUNCY. Bland, Bland Co., Va.; formerly Cashier Bland Bank, Bland, Va.; died August 18th, 1908, Bland, Va.

COURSE OF MECHANICS

- W. F. PAGE. Lynchburg, Campbell Co., Va.; with U. S. Bureau of Fisheries until his death, which occurred July 2d, 1903.

- D. J. RUMBOUGH.....Lynchburg, Campbell Co., Va.; Lieut.-
Col. 1st Field Artillery U. S. Army;
address, Fort Sill, Oklahoma.
- D. T. WALKER.....Lynchburg, Campbell Co., Va.; Clerk;
Lynchburg, Va.

COURSE OF AGRICULTURE AND MECHANICS

- W. C. CHAPLAIN....._____, Princess Anne Co.,
Va.; Farming and Stock-raising; Hol-
lingsworth, Whatcom Co., Wash.
- A. S. LLOYD, D. D.....Alexandria, Fairfax Co., Va.; Bishop
Coadjutor of Va.; Alexandria, Va.
- J. L. RADFORD.....Radford, Montgomery Co., Va.; Busi-
ness Man, Farmer and Member of Leg-
islature two sessions; died at Rockford,
Pulaski Co., Va., Oct. 20th, 1901.

CLASS 1876—GRADUATES

COURSE OF AGRICULTURE

- B. M. ALLEN.....Ruther Glen, Caroline Co., Va.; Law-
yer; Birmingham, Ala.
- G. A. BOWMAN.....Vienna, Fairfax Co., Va.; died April
30th, 1884.
- A. L. BURKS.....Saltpetre Cave, Botetourt Co., Va.; for-
merly Chesapeake & Ohio Railway
Station Master; deceased.
- W. A. CALDWELL.....Sinking Creek, Craig Co., Va.; Travel-
ing Salesman, Molasses Importing
House; Box 155, Wilmington, N. C.
- S. P. COSTON.....Eastville, Northampton Co., Va.; died
January 30th, 1883, at Baltimore, Md.
- R. K. DABNEY.....Powhatan Court-House, Va.; Contract-
ing Engineer; Route 2, Box 9, Grand
Prairie, Tex.
- C. D. DIGGS.....Cumberland Co., Va.; Deputy Treasurer,
Cumberland County; Cumberland Court-
House, Va.

- W. A. EDWARDS.....Smithfield, Isle of Wight Co., Va.; Farming; Smithfield, Va.
- W. E. EWING.....Bedford City, Bedford Co., Va.; Farmer and Breeder; Franklin, Neb.
- M. S. FLOYD.....Lynchburg, Campbell Co., Va.; Farming; Amherst, Va.
- W. C. FRANKLIN.....Pamplin City, Appomattox Co., Va.; Lawyer; Pamplin City, Va.
- P. M. FRY.....Coyner's Springs, Botetourt Co., Va.; Manager Jefferson Hotel; Richmond, Va.
- R. N. HOWARD.....Yorktown, York Co., Va.; Farming and Oyster-Planting; Grafton, Va.
- H. HUNT.....Bay View, Northampton Co., Va.; Farming; Dalby, Va.
- W. J. LAWRENCE....._____, Nansemond Co., Va.; Member of the Firm of Lawrence & Porter, Commission Merchants; Norfolk, Va.
- J. MADISON.....Liberty Mills, Orange Co., Va.
- S. M. McLAUGHLIN.....Halifax Court-House, Va.; died July 25th, 1888.
- J. H. PIGG.....Pigg's Mill, Pittsylvania Co., Va.; Financier; El Paso, Tex.
- F. P. PRICE.....Prospect, Prince Edward Co., Va.; formerly Postmaster, Farmville, Va.; died October 19th, 1887.
- C. O. SANTOS.....Norfolk, Norfolk Co., Va.; Apothecary in charge of City Dispensary; 136 South Reservoir Ave., Norfolk, Va.
- G. D. SHOWACRE.....Stanardsville, Greene Co., Va.; Farming; Meeker, Oklahoma.
- R. SNAVELY.....Wytheville, Wythe Co., Va.; Principal Roanoke City High School; Roanoke, Va.

COURSE OF AGRICULTURE AND MECHANICS

- H. D. AYRE.....Delaplane, Fauquier Co., Va.; Farming; Cleveland, Tenn., R. F. D. No. 7.

- A. B. DAVIS.....Sandy Level, Pittsylvania Co., Va.; Abstract Loan and Real Estate Business; Nevada, Mo.
- J. R. HAW.....Richmond, Henrico Co., Va.; Engineer U. S. Quartermaster Dept., Fortress Monroe; address, 700 Armistead Ave., Hampton, Va.
- J. M. HUDSON.....Sharon, Bland Co., Va.; Farming; Ceres, Va.
- S. W. WATKINS.....Farmville, Prince Edward Co., Va.; Deputy Treasurer and City Councilman; Tobacco Business; Farmville, Va.

CLASS 1877—GRADUATES

COURSE OF AGRICULTURE

- W. S. ADKISSON.....Mt. Laurel, Halifax Co., Va.; Merchant and Farmer; Mt. Laurel, Va.
- J. R. BOSWELL....._____, Fauquier Co., Va.; Traveling Salesman, Forbes Brothers Tea and Spice Co., St. Louis, Mo.; address, 1002 Cherry St., Fort Worth, Tex.
- A. R. HEFLIN.....Falmouth, Stafford Co., Va.; Lawyer; Hinton, W. Va.
- H. M. HOLLADAY....._____, Spottsylvania Co., Va.; Lawyer; Holladay, Va.
- G. LINDSAY.....West Point, King William Co., Va.; Examiner of Records, First Judicial Circuit, Journal Clerk, House of Delegates; Pinnars Point, Va.
- W. NELSON....._____, Hanover Co., Va.; died in Danville, Va., April 6th, 1899.
- J. B. OULD.....Richmond, Henrico Co., Va.; Lumber Business; Backwoods, Tenn.
- G. W. TYLER.....Bowling Green, Caroline Co., Va.; Gen. Agent, S. W. Va. Equitable Life Insurance Co. of New York; Seven-Mile Ford, Va.

- T. H. WILLCOX.....Willcox Wharf, Charles City Co., Va.;
Lawyer; address, 502 Citizens' Bank
Building, Norfolk, Va.

COURSE OF AGRICULTURE AND MECHANICS

- W. R. BOGGS.....Blacksburg, Montgomery Co., Va.; was
killed near Tapia, Mexico, November
17th, 1907.
- J. T. JONES.....Aldie, Loudoun Co., Va.; Farming;
New Franklin, Mo.
- H. B. McDONALD.....McDonald's Mill, Montgomery Co., Va.;
Merchant and Farmer; McDonald's
Mill, Va.
- O. J. RADCLIFF.....Matoaca, Chesterfield Co., Va.; died
April, 1903, Matoaca, Va.
- D. M. ROBERTSON.....Spout Spring, Appomattox Co., Va.;
Physician; Spout Spring, Va.
- J. J. SEARS.....Appomattox Court-House, Va.; Book-
keeper; 407 Third St., San Antonio,
Tex.
- H. M. SMITH.....Richmond, Henrico Co., Va.; Lawyer,
Member of the Firm of Smith, Moncure
& Gordan, Member of the Board of
Visitors of V. P. I.; Richmond, Va.

CLASS 1878—GRADUATES

COURSE OF AGRICULTURE

- B. R. BRYANT.....Newsoms, Southampton Co., Va.; Physi-
cian; died at Boykins, Va., November
14th, 1909.
- B. BURWELL, JR.....Richmond, Henrico Co., Va.; General
Contractor and Civil Engineer; Jackson-
ville, Fla.
- R. T. GLEAVES.....Wytheville, Wythe Co., Va.; Member
of the Firm of Adams, Payne & Gleaves,
Building Material; Roanoke, Va.

- R. H. JONES.....Leesburg, Loudoun Co., Va.; Farming;
New Franklin, Mo.
- S. D. JONES.....Concord, Campbell Co., Va.; President
Atlanta Stove Works; Atlanta, Ga.
- C. L. PAGE.....Richmond, Henrico Co., Va.; Lawyer,
City Attorney; Manchester, Va.
- J. B. ROLLER....._____, Halifax Co., Va.; In-
surance Business; Oxford, N. C.
- C. E. WAGER.....Brandy, Culpeper Co., Va.; Engineer in
City Department of Engineering; Room
45, District Building, Washington,
D. C.
- C. A. WELLER.....Staunton, Augusta Co., Va.; Mine Oper-
ator and Manufacturer; P.-O. Box 61,
Knoxville, Tenn.

COURSE OF AGRICULTURE AND MECHANICS

- A. BOGGS.....Blacksburg, Montgomery Co., Va.; died
at Newark, N. J., May 19th, 1881.
- W. H. PERKINSON.....Petersburg, Dinwiddie Co., Va.; former-
ly Professor of German and Italian,
University of Virginia, Charlottesville,
Va.; died November 7th, 1898.

CLASS 1879—GRADUATES

COURSE OF AGRICULTURE

- J. M. CARRINGTON.....Mayo, Halifax Co., Va.; Physician; Mt.
Laurel, Va.
- L. L. DYE....._____, Russell Co., Va.; Phy-
sician; Plain View, Tex.
- L. B. HITE....._____, Rappahannock Co.,
Va.; deceased.
- S. W. PAUL.....Norfolk, Norfolk Co., Va.; deceased.
- R. M. PERROW.....Marysville, Campbell Co., Va.; Farmer
and Merchant; Lynchburg, Va.
- J. G. TANNER.....Lynchburg, Campbell Co., Va.; died
March 3d, 1909, at Brookneal, Va.
- C. S. WILLIAMS....._____, Nottoway Co., Va.

COURSE OF MECHANICS

R. T. GLEAVES....."78."

COURSE OF AGRICULTURE AND MECHANICS

J. F. ALTAFFER.....Harrisonburg, Rockingham Co., Va.;
Farmer; Red Oak Mountain, Geomy
Co., Ia.

J. W. BOSWELL.....Mt. Laurel, Halifax Co., Va.; Real
Estate Broker; Danville, Va.

W. L. MATHEWS.....Wabash, Giles Co., Va.; Commissioner
of Revenue for Western District, for
Wise Co.; present address, Big Stone
Gap, Va.

W. T. PAGE.....Norfolk, Norfolk Co., Va.; Manager
and Assayer, American Smelting and
Refining Co.; Omaha, Neb.

T. H. WHITE....., Albemarle Co., Va.;
deceased.

CLASS 1880—GRADUATES

COURSE OF AGRICULTURE

E. R. ARMENTROUT....., Rockbridge Co., Va.;
Merchant; present address, 422 9th
St., N. W., Washington, D. C.

C. H. BOLEN.....Eldorado, Culpeper Co., Va.; Lawyer;
died at Tacoma, Wise Co., Va., Au-
gust 18th, 1892.

I. DIGGS.....Stephensonville, King and Queen Co.,
Va.; Lawyer; Richmond, Va.

H. L. MAYNARD.....Norfolk, Norfolk Co., Va.; Member of
Congress from Second District; Ports-
mouth, Va.

A. T. SCANLAND.....Leesburg, Loudoun Co., Va.; Proprietor
Queen Lunch Room; corner 7th and H
Sts., N. W., Washington, D. C.

W. WILSON.....Oak Grove, Westmoreland Co., Va.;
Farming; Oak Grove, Va.

COURSE OF AGRICULTURE AND MECHANICS

- J. W. KEISTER.....Blacksburg, Montgomery Co., Va.;
Druggist, Member of the Firm of J. W.
Keister & Co.; Pulaski City, Va.
- F. MULLER.....Warrenton, Fauquier Co., Va.; Instruct-
or of English, Higher Commercial
School, Kobe, Japan.
- W. E. SEABROOK.....McClellansville, S. C.; died at Athens,
Ga., September 25th, 1908.

CLASS 1881—GRADUATES

COURSE OF AGRICULTURE

- J. A. CLARK.....Bedford City, Bedford Co., Va.; To-
bacco Business; Bedford City, Va.
- R. N. MUSGRAVE....._____, Southampton Co., Va.
- A. C. CONWAY.....Spring Garden, Pittsylvania Co., Va.;
Real Estate Business; Danville, Va.

COURSE OF AGRICULTURE AND MECHANICS

- J. A. CROWTHER.....Burgess Store, Northampton Co., Va.;
Physician; Savannah, Ga.
- J. H. GOODRIDGE.....Montrose, Westmoreland Co., Va.;
Farmer; Zacula, Va.
- W. E. HARRIS.....Jonesville, Lee Co., Va.; Real Estate
Broker; 911 East Main St., Richmond,
Va.
- W. S. MARSHALL....._____, Southampton Co., Va.;
deceased.

CLASS 1882—GRADUATES

COURSE OF AGRICULTURE

- W. J. KENDAL....._____, Fauquier Co., Va.;
died February 20th, 1907, at Paris, Va.
- S. A. KINNEAR....._____, Rockbridge Co., Va.;
deceased.

- E. LAND.....London Bridge, Princess Anne Co., Va.;
Physician, Mayor; Virginia Beach, Va.
- F. M. PAYNE.....Newport, Giles Co., Va.; Secretary and
Treasurer, Shelby & Ahl Co., Manu-
facturers of Artistic Leather Furniture;
293 Front St., Binghamton, N. Y.
- W. W. PIGG.....Pigg's Mill, Pittsylvania Co., Va.; Sur-
veyor, Farmer and Constable; Dry
Fork, Va.
- J. H. PRICE.....Jackson, Tenn.; Gen. Manager for Mass.
Mutual Life Insurance Co.; 337 W.
Baltimore St., Jackson, Tenn.
- S. A. REYNOLDS.....Callands, Pittsylvania Co., Va.; Physi-
cian and Postmaster; Vashti, Va.
- H. L. WATSON.....Saltville, Washington Co., Va.; Dist.
Manager Martindale Mercantile Agency
of New York; address, 611 American
Bank Building, Richmond, Va.

COURSE OF AGRICULTURE AND MECHANICS

- R. M. C. GLENN.....South Boston, Halifax Co., Va.; Presi-
dent Seidenburg & Co.; 111 Fifth Ave.,
New York, N. Y.
- W. A. HAVENER.....Daysville, Loudoun Co., Va.; Lawyer;
Cloves, New Mexico.
- R. J. NOELL.....Christiansburg, Montgomery Co., Va.;
Merchant and Druggist and Member of
the Board of Visitors of V. P. I.; Rad-
ford, Va.

CLASS 1883—GRADUATES

COURSE OF AGRICULTURE

- E. ANDERSON.....Mineola, Pittsylvania Co., Va.; Captain
U. S. Army; Subsistence Dept. Head-
quarters, Dept. of the Lakes; Chicago,
Ill.

- H. T. JOLIFFE.....Laurel Mills, Rappahannock Co., Va.;
Farmer, U. S. Mail Contractor; View-
town, Va.
- W. L. PIERCE.....Christiansburg, Montgomery Co., Va.;
Insurance and Real Estate Agent; Chris-
tiansburg, Va.
- W. H. SILCOTT.....Dover, Loudoun Co., Va.; Postmaster
and Farmer; Middleburg, Va.
- J. R. WILSON.....Pulaski, Pulaski Co., Va.; formerly
Member of Legislature, Chairman Fi-
nance Committee; died August, 1904,
at New South Boston, Tex.

COURSE OF MECHANICS

- B. T. BAKER....., Goochland Co., Va.;
Contractor and Builder; Manchester,
Va.
- H. L. WATSON....."82."
- C. E. GILBERT.....Sandy Level, Pittsylvania Co., Va.;
Lawyer; Nevada, Mo.
- J. W. LACKEY.....Yorktown, York Co., Va.; Superintend-
ent Saugerties Manufacturing Co.; Sau-
gerties, Ulster Co., N. Y.
- W. MULLER.....Warrenton, Fauquier Co., Va.; died
April, 1892.
- G. H. SPOONER.....Charlottesville, Albemarle Co., Va.; Pas-
tor Monumental Church (Methodist);
Portsmouth, Va.

COURSE FOR DEGREE OF A. B.

- W. A. HAVENER....."82." R. J. NOELL....."82."

CLASS 1884—GRADUATES

COURSE OF AGRICULTURE

- D. C. BOWMAN....., Spottsylvania Co., Va.;
Druggist; Fredericksburg, Va.

- J. C. GREEN....., Pittsylvania Co., Va.;
Locomotive Engineer; Covington, Ky.
- H. E. JONES.....Nebraska, Appomattox Co., Va.; Phy-
sician; address, 6½ Salem Ave., S. W.,
Roanoke, Va.
- J. E. MILLER.....Blacksburg, Montgomery Co., Va.; Vet-
erinary Surgeon; Gainesville, Va.
- W. M. PIERCE.....Christiansburg, Montgomery Co., Va.;
Lawyer; Christiansburg, Va.
- J. J. SILVEY.....Amissville, Rappahannock Co., Va.;
General Freight Agent, S. M. Hess &
Bro., Phila.; present address, Warren-
ton, Va.; permanent address, Amiss-
ville, Va.

COURSE OF MECHANICS

- W. L. PIERCE....."83."

COURSE OF AGRICULTURE AND MECHANICS

- W. A. JONES....., Nottoway Co., Va.;
Farmer; Gladys, Va.
- C. A. PEPLE.....Manchester, Chesterfield Co., Va.; Cash-
ier Bank of Commerce; Richmond, Va.

COURSE FOR DEGREE OF A. B.

- C. E. GILBERT....."83." G. H. SPOONER....."83."
W. L. PIERCE....."83." H. L. WATSON....."82."

CLASS 1885—GRADUATES

COURSE OF AGRICULTURE

- A. J. GRYMES.....Mathias Point, King George Co., Va.;
Superintendent Marine Dept., Erie Rail-
road, N. Y.; address, 139 Parke St.,
East Orange, N. J.
- A. I. HARKESS.....Cowan's Mills, Montgomery Co., Va.;
Lawyer; Christiansburg, Va.
- R. L. PAYNE.....Air Point, Roanoke Co., Va.; Ranching;
Lander, Wyoming.

COURSE OF AGRICULTURE AND MECHANICS

W. H. BEAL.....Old Church, Hanover Co., Va.; Chief
of Editorial Division, Office of Experiment
Stations, U. S. Department of Agriculture; Washington, D. C.

COURSE FOR DEGREE IN MINING ENGINEERING (M. E.)

W. A. JONES....."84."

CLASS 1886—GRADUATES

COURSE OF AGRICULTURE

G. F. ELLETT.....Blacksburg, Montgomery Co., Va.;
Lawyer; Christiansburg, Va.
W. A. MURRILL.....Blacksburg, Montgomery Co., Va.;
Assistant Director, New York Botanical
Gardens; New York City.
B. G. PFEIFFER.....Westwood, Prince George Co., Md.;
Superintendent City Schools; Annapolis,
Md.
A. E. F. PRICE.....Blacksburg, Montgomery Co., Va.;
Teacher and Farmer; died at Long
Shop, Va., August 20th, 1893.
P. ROBERTSON.....Port Haywood, Mathews Co., Va.;
Teacher in private school; 320 Bute St.,
Norfolk, Va.

COURSE OF MECHANICS

R. E. L. AYLOR.....Culpeper Court-House, Va.; Pastor Baptist
Church; Houston, Va.

COURSE FOR DEGREE OF A. B.

R. E. L. AYLOR....."86." W. H. BEAL....."85."

COURSE FOR DEGREE OF M. E.

W. H. BEAL....."85."

CLASS 1887—GRADUATES

COURSE OF AGRICULTURE

- H. C. GUERRANT.....Pilot, Montgomery Co., Va.; Civil Engineer; died September 22d, 1899.
J. E. POSTEN.....Lynchburg, Campbell Co., Va.; Book-keeper; Lynchburg, Va.
H. WOOD.....Ivy Depot, Albemarle Co., Va.; Civil Engineer and Draftsman U. S. Navy; with U. S. Government Survey of Cuba; address, care of P. M. Port Tampa, Fla.

COURSE OF MECHANICS

- W. A. MURRILL....."86." A. E. F. PRICE....."86."

COURSE FOR DEGREE OF B. SC.

- W. A. MURRILL....."86." A. E. F. PRICE....."86."

CLASS 1888—GRADUATES

COURSE OF AGRICULTURE

- R. H. PRICE.....Blacksburg, Montgomery Co., Va.; Horticulturist; Long Shop, Va.
J. W. WALLACE.....Williamsville, Bath Co., Va.; Physician; Covington, Va.

COURSE OF MECHANICS

- R. T. BRAY.....Mayo, Halifax Co., Va.; formerly Adjunct Professor of Mechanical Engineering, A. and M. College, Texas; died at Danville, Va., September 7th, 1898.
J. H. COX.....Manchester, Chesterfield Co., Va.; Constructing Engineer, Bell Telephone Co.
R. W. FOARD.....Martinsville, Henry Co., Va.; Electrical Engineer; 319 Boush St., Norfolk, Va.

SCIENTIFIC COURSE

- F. D. BERRY.....Richmond, Henrico Co., Va.; Real Estate Business; address, care of Dean Alvord, 111 Broadway, New York, N. Y.
- B. F. FINNEY.....Sublett, Powhatan Co., Va.; Southern Field Secretary, Brotherhood of St. Andrew; Savannah, Ga.
- J. R. SHEFFIELD.....Farmville, Prince Edward Co., Va.; Salesman; address, 465 Central Place West, New York City.

COURSE OF CIVIL ENGINEERING

- S. G. McNULTY.....Fishersville, Augusta Co., Va.; Vice-President and General Manager Thacker Coal Mining Co.; Rose Siding, W. Va.

COURSE FOR DEGREE OF B. Sc. A.

- A. E. F. PRICE....."86."

CLASS 1889—GRADUATES

COURSE OF AGRICULTURE

- W. H. REYNOLDS.....Sago, Pittsylvania Co., Va.; Farmer, R. F. D. Carrier; Swansonville, Va.
- E. A. ROADS.....Amissville, Rappahannock Co., Va.; Minister M. E. Church South; Remington, Va.

COURSE OF MECHANICS

- G. W. THOMPSON.....Burfordsville, Bedford Co., Va.; Superintendent of Installation for the Blaisdell Machine Co., of Bradford, Pa.
- S. A. WHITE.....Five Oaks, Tazewell Co., Va.; Superintendent, Mt. Airy & Eastern Railroad Co.; Mt. Airy, N. C.

SCIENTIFIC COURSE

- W. W. COUCH..... Pamplin City, Appomattox Co., Va.;
member of the firm of Beasley & Couch,
Wholesale Dealers in Caps and Hats;
Lynchburg, Va.
- S. H. GRAVES..... Madison Court-House, Va.; Lawyer;
Solicitor, Legal Dept. City of Roanoke;
Roanoke, Va.
- H. T. TURNER..... Glenmore, Buckingham Co., Va.; Prin-
cipal Well Water Academy; Howards-
ville, Va.

COURSE IN MECHANICS FOR DEGREE OF MECHANICAL
ENGINEER

- R. T. BRAY..... "88."

GENERAL COURSE FOR DEGREE OF BACHELOR OF SCIENCE

- H. C. GUERRANT..... "87." J. E. POSTEN..... "87."

COURSE FOR DEGREE OF CIVIL ENGINEER

- S. G. McNULTY..... "88."

CLASS 1890—GRADUATES

COURSE OF AGRICULTURE

- H. T. HALL..... Blacksburg, Montgomery Co., Va.;
Lawyer, member of the firm of Robert-
son, Hall, Woods & Jackson; Roan-
oke, Va.

COURSE OF MECHANICS

- J. E. PARRISH..... McFarland's, Lunenburg Co., Va.; Con-
tractor and Builder; Knoxville, Tenn.
- C. W. REYNOLDS..... Locust Grove, Orange Co., Va.; Con-
tractor and Builder; Culpeper, Va., R.
F. D. No. 4.

T. L. WATSON.....Chatham, Pittsylvania Co., Va.; Professor of Economic Geology, University of Virginia; State Geologist; Charlottesville, Va.

COURSE OF CIVIL ENGINEERING

G. H. DERRICK.....Houston, Halifax Co., Va.; Civil Engineer; Pulaski, Va.

CLASS 1891—GRADUATES

COURSE OF AGRICULTURE

W. W. HURT.....Chatham, Pittsylvania Co., Va.; Farming; Chatham, Va.

COURSE OF MECHANICS

A. S. MALLORY.....Charlotte, N. C.; died August 9th, 1907, in New York City.

A. MURRILL.....Blacksburg, Montgomery Co., Va.; Teacher and Surveyor; Blacksburg, Va.

COURSE OF GENERAL SCIENCE

B. R. KENNON.....Subletts, Powhatan Co., Va.; Physician; address, Taylor Building, Norfolk, Va.

GENERAL COURSE IN SCIENCE FOR DEGREE OF BACHELOR OF SCIENCE

C. W. REYNOLDS....."90."

CLASS 1892—BACHELORS OF SCIENCE

COURSE OF HORTICULTURE

R. H. PRICE....."88."

COURSE OF APPLIED CHEMISTRY

J. A. MASSIE.....Gaines' Cross Roads, Rappahannock Co., Va.; Lawyer, City Attorney; Newport News, Va.

COURSE OF CIVIL ENGINEERING

G. W. CONNOR.....Max Meadows, Wythe Co., Va.; Merchant; Johnson City, Tenn.

COURSE OF MECHANICAL ENGINEERING

W. G. CONNOR.....Max Meadows, Wythe Co., Va.; Professor of Mechanic Arts, V. P. I.; Blacksburg, Va.

C. G. PORCHER.....El Paso, Tex.; 1st Lieutenant of Engineers, U. S. Revenue Cutter "Manning," Astoria, Oregon; permanent address, Treasury Department, Washington, D. C.

POST-GRADUATE DEGREES

MASTER OF SCIENCE

C. N. MCBRYDE.....Blacksburg, Montgomery Co., Va.; B. S. University S. C., Senior Bacteriologist Biochemical Laboratory, U. S. Department of Agriculture; Washington, D. C.

CLASS 1893—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

A. T. FINCH.....Boydton, Mecklenburg Co., Va.; Physician; Major and Surgeon Medical Corps of Va.; assigned to the 2d Regiment Infantry; Chase City, Va.

W. O. FRITH.....Sydnorsville, Franklin Co., Va.; Lawyer, Editor *Blacksburg News*; Blacksburg, Va.

COURSE OF GENERAL SCIENCE

A. W. DRINKARD.....Mt. Atlas, Campbell Co., Va.; Professor of History and Economics, V. P. I.; Blacksburg, Va.

S. H. GRAVES....."89."

COURSE OF CIVIL ENGINEERING

J. W. STULL.....Richpatch, Alleghany Co., Va.; Mine Superintendent for Lowmoor Iron Co. of Virginia; address, Jordan Mines, Va.

COURSE OF MECHANICAL ENGINEERING

E. P. MINER.....Suffolk, Nansemond Co., Va.; Assistant Rector St. Luke's Church; 273 Bute St., Norfolk, Va.

R. E. WRIGHT.....Battery, Essex Co., Va.; 1st Lieutenant of Engineers, Cutter "McCulloch," Sausalito, Cal.; permanent address, Treasury Department, Washington, D. C.

POST-GRADUATE DEGREES

MASTER OF SCIENCE

T. L. WATSON....."90."

CIVIL ENGINEER

R. T. BRAY....."88."

CLASS 1894—BACHELORS OF SCIENCE

COURSE OF HORTICULTURE

J. F. STRAUSS.....Pulaski City, Pulaski Co., Va.; Artist, Bureau of Entomology, Department of Agriculture; Washington, D. C.

COURSE OF APPLIED CHEMISTRY

W. B. ELLETT.....Christiansburg, Montgomery Co., Va.; Chemist, Virginia Experiment Station; Blacksburg, Va.

A. T. ESKRIDGE.....Shawsville, Montgomery Co., Va.; Lawyer; Pulaski City, Va.

S. V. LOVENSTEIN.....Richmond, Henrico Co., Va.; Manufacturers' Agent; 812 Arch St., Philadelphia, Penn.

F. D. WILSON Chatham, Pittsylvania Co., Va.; Professor of Chemistry, V. P. I.; Blacksburg, Va.

COURSE OF MECHANICAL ENGINEERING

H. B. PRATT, JR. Lenares, Mexico; President, and Chemist of the Laboratory, of the B. G. Pratt Co., Office 50 Church St., New York City; Laboratory, 150 Paul St., Hackensack, N. J.

COURSE OF ELECTRICAL ENGINEERING

A. H. APPERSON Marion, Smyth Co., Va.; Electrician, Southeastern Tariff Association; present address, Box 778, Richmond, Va.

T. G. LEWTON Deland, Valencio, Fla.; 1st Lieutenant of Engineers, U. S. Revenue Cutter "Algonquin," San Juan, P. R.; permanent address, Treasury Department, Washington, D. C.

R. P. WHITTLE Norfolk, Norfolk Co., Va.; formerly Consulting Engineer, Denver, Col.; died October 29th, 1898.

GRADUATE DEGREES

MASTER OF SCIENCE

W. O. FRITH "93."

CIVIL ENGINEER

G. H. DERRICK "90."

MECHANICAL ENGINEER

A. MURRILL "91."

CLASS 1895—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

F. W. SIMPSON Glasgow, Scotland; Farming; Smithfield, Ky.

COURSE OF GENERAL SCIENCE

- W. E. DODD.....Clayton, N. C.; Professor of American History, University of Chicago; address, 5734 Washington Ave., Chicago, Ill.
- R. I. ROOP.....Childress, Montgomery Co., Va.; Lawyer, Commonwealth's Attorney; Christiansburg, Va.
- R. C. STUART.....Rural Retreat, Wythe Co., Va.
- G. T. SURFACE.....Blacksburg, Montgomery Co., Va.; Assistant Professor of Geography, Sheffield Scientific School of Yale University; New Haven, Conn.

APPLIED CHEMISTRY

- J. C. DABNEY.....Chatham, Pittsylvania Co., Va.; formerly Chemist, Agricultural Department, Washington, D. C.; died at Chatham, Va., February 21st, 1899.
- J. G. HEAVENER.....Cowan's Mills, Montgomery Co., Va.; formerly Chemist in Department of Agriculture, Richmond, Va.; died at Vicar's Switch, Va., May 9th, 1905.
- J. W. SAMPLE.....Charlotte, N. C.; Chemist, Woodstock Iron Works; Anniston, Ala.
- F. W. SMITHERS.....Hampton, Elizabeth City Co., Va.; Assistant Chemist, Bureau of Chemistry, U. S. Department of Agriculture; Washington, D. C.
- W. P. WADDY.....Richmond, Henrico Co., Va.; Secretary, Everett Waddy Co.; Richmond, Va.

COURSE OF CIVIL ENGINEERING

- C. J. RICHARDSON.....Hot Springs, Bath Co., Va.; Hardware Merchant; Marlinton, W. Va.

COURSE OF MECHANICAL ENGINEERING

- J. B. CARPER.....Gala, Botetourt Co., Va.; President and General Manager, Milan Mining and Milling Co., Portland, Me.; address, Box 666.

- C. G. GUIGNARD.....Columbia, S. C.; Superintendent Brick Manufacturing Co., Director and Secretary of the Columbia Granite Con. and Mfg. Co.; Columbia, S. C.
- U. HARVEY....."94;" Newport News, Warwick Co., Va.; 1st Lieutenant of Engineers, U. S. Revenue Cutter "Windom," Galveston, Tex.; permanent address, Treasury Department, Washington, D. C.
- L. W. JERRELL....."94;" Brockenburg, Spottsylvania Co., Va.; formerly Instructor in Wood Work V. P. I.; died at Brockenburg, Va., June 8th, 1898.
- W. A. PERRY.....Wylliesburg, Charlotte Co., Va.; formerly Principal, Graded School, Clarks-ville, Va.; died at Wylliesburg, Va., March 16th, 1898.
- C. A. WHEELER.....Patterson, Wythe Co., Va.; 1st Lieutenant of Engineers, U. S. Revenue Cutter "Yamacraw," Savannah, Ga.; permanent address, Treasury Department, Wash- ington, D. C.

COURSE OF ELECTRICAL ENGINEERING

- H. S. GORMLEY.....Charlotte, N. C.; Chief Draftsman, Washington Railway and Electric Co.; address, Branchville, Md.; permanent address, 14th and E Capitol Sts., Wash- ington, D. C.

POST-GRADUATE DEGREES

MASTER OF SCIENCE

- A. W. DRINKARD....."93."

MECHANICAL ENGINEERS

- R. P. WHITTLE....."94." R. E. WRIGHT....."93."

CLASS 1896—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

- M. FERGUSON.....Rose Bower, Appomattox Co., Va.;
Bacteriologist, State Board of Health;
Richmond, Va.

COURSE OF HORTICULTURE

- W. M. SCOTT.....Sugar Grove, Smyth Co., Va.; Plant
Pathologist in charge of Orchard Spraying,
Experiments and Demonstrations,
Bureau of Plant Industry, U. S. Department
of Agriculture; Washington,
D. C.

COURSE OF APPLIED CHEMISTRY

- O. M. STULL.....Rich Patch, Alleghany Co., Va.; General
Manager, Goshen Iron Co.; Goshen,
Va.
- T. D. MARTIN.....Chatham, Pittsylvania Co., Va.; Purchaser
for the Imperial Tobacco Co.;
Chatham, Va.

COURSE OF GENERAL SCIENCE

- L. D. KLINE....."95;" Vacluse, Frederick Co., Va.;
Manager, Newstead Farm; Member of
Board of Visitors V. P. I.; address,
Newstead Farm, Route 5, Richmond,
Va.
- S. H. SHEIB.....Baltimore, Md.; Chief Chemist, Tennessee
Chemical Co., Nashville, Tenn.;
address, 310½ Union St.

COURSE OF MECHANICAL ENGINEERING

- W. E. BARTON.....Alexandria, Fairfax Co., Va.
- A. P. ESKRIDGE.....Shawsville, Montgomery Co., Va.; on
Construction of City Sewers, Birmingham,
Ala.; address, Box 25, Avondale,
Station, Birmingham, Ala.

- J. R. GUY.....Norfolk, Norfolk Co., Va.; Draftsman
Norfolk Navy Yard; 321 North Park
Ave., Norfolk, Va.
- R. E. MOORE.....Roanoke, Roanoke Co., Va.; Lawyer;
Bluefield, W. Va.
- N. R. PATRICK.....Rustburg, Campbell Co., Va.
- O. C. THOMPSON.....Petersburg, Dinwiddie Co., Va.; Man-
ager, Nat. Wire Bound Box Co., South
Bend, Ind.; address, Y. M. C. A.,
South Bend, Ind.
- F. P. TURNER.....Riner, Montgomery Co., Va.; Assistant
Mechanical Engineer, Norfolk & West-
ern Railway; Chillicothe, O.

COURSE OF ELECTRICAL ENGINEERING

- J. H. FRASER.....Georgetown, S. C.; Real Estate and In-
surance Agent; Georgetown, S. C.
- R. R. LEWIS.....Charleston, S. C.; Turbine Department,
General Electric Co.; 134 Park Ave.,
Schenectady, N. Y.
- B. D. MILLER.....Hopewell, N. C.; Treasurer and Man-
ager, Siluria Cotton Mill Co.; Secretary
and Treasurer, Siluria Real Estate and
Investment Co.; Siluria, Ala.
- E. PRICE.....Berryville, Clark Co., Va.; Power and
Mining Department, General Electric
Co.; Schenectady, N. Y.
- S. S. FRASER....."95;" Georgetown, S. C.; Electrical
Contractor; Georgetown, S. C.
- C. LEE.....Danville, Pittsylvania Co., Va.; Associ-
ate in Electrical Engineering, V. P. I.;
Blacksburg, Va.

POST-GRADUATE DEGREES

MASTER OF SCIENCE

- | | |
|--------------------------|-------------------------|
| W. B. ELLETT....."94." | J. A. MASSIE....."92." |
| A. T. ESKRIDGE....."94." | G. T. SURFACE....."95." |
| F. D. WILSON....."94." | |

MECHANICAL ENGINEER

W. G. CONNOR....."92."

CLASS 1897—BACHELORS OF SCIENCE

COURSE OF HORTICULTURE

W. R. KARR.....Blacksburg, Montgomery Co., Va.;
Farming; Blacksburg, Va.

COURSE OF AGRICULTURE

J. L. PHILLIPS.....Massey, Accomac Co., Va.; State Entomologist of Va.; Blacksburg, Va.

COURSE OF APPLIED CHEMISTRY

H. H. HURT.....Chatham, Pittsylvania Co., Va.; Superintendent, Robeson Process Co.; Covington, Va.

COURSE OF GENERAL SCIENCE

W. C. EAKIN.....Blacksburg, Montgomery Co., Va.;
with Jackson Fertilizer Co.; Jackson, Miss.

T. H. EPES.....Nottoway Court-House, Va.; Salesman,
Richmond Paper Manufacturing Co.;
311 N. 12th St., Richmond, Va.

L. JOHNS.....Roanoke, Va.; Lawyer; member of firm
Johns & Wood; 107 Dearborn St.,
Chicago, Ill.

L. PRIDDY.....Keysville, Charlotte Co., Va.; Insurance;
149 Broadway, N. Y.

COURSE OF CIVIL ENGINEERING

E. J. KERFOOT....."96;" Millwood, Clark Co., Va.; with
Florida East Coast Ry.; Key West, Fla.

J. B. URQUHART.....Enterprise, Southampton Co., Va.; Architect,
member of the firm of Wilson,
Sompayrac & Urquhart, Engineers and
Architects; Columbia, S. C.

. COURSE OF MECHANICAL ENGINEERING

- E. V. JONES, JR. Cismont, Albemarle Co., Va.; Draftsman, Estimating Department, Div. Shipbuilding and Dry Dock Co.; Newport News, Va.
- W. R. KIRKPATRICK Alone, Rockingham Co., Va.; with the Seaboard Air Line Railway; address, 811 27th St., Park Place, Norfolk, Va.
- R. TURNBULL, JR. Lawrenceville, Brunswick Co., Va.

COURSE OF ELECTRICAL ENGINEERING

- F. J. CHAPMAN Salem, Roanoke Co., Va.
- H. C. ELLETT Christiansburg, Montgomery Co., Va.; Lawyer, Claim Attorney Virginian Railway; Princeton, W. Va.
- J. G. GUERRANT Christiansburg, Montgomery Co., Va.; Lawyer, formerly member of the firm of Guerrant & Roop; Christiansburg, Va.; died November 22d, 1904.
- C. E. HARDY Rome, Ga.
- D. F. MORTON Eureka Mills, Charlotte Co., Va.
- J. M. MCBRYDE, JR. Lexington, Rockbridge Co., Va.; formerly Electrical Engineer; died at Orange, N. J., September 26th, 1900.
- F. SAUNDERS, JR. Evington, Campbell Co., Va.; Farming and Mining; Evington, Va.

POST-GRADUATE DEGREES

MASTERS OF SCIENCE

- W. E. DODD "95."
- C. C. TUTWILER Lexington, Rockbridge Co., Va.; Chemist, United Gas Improvement Co.; Philadelphia, Penn.

CIVIL ENGINEER

- J. W. STULL "93."

MECHANICAL ENGINEERS

C. G. GUIGNARD....."95." L. W. JERRELL....."95."

CLASS 1898—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

H. L. PRICE.....Price's Fork, Montgomery Co., Va.;
Horticulturist, Va. Experiment Station;
Dean of Agricultural Department and
Professor of Horticulture, V. P. I.;
Blacksburg, Va.

COURSE OF APPLIED CHEMISTRY

L. C. COVINGTON.....Crewe, Nottoway Co., Va.; Physician;
Rocky Mount, N. C.
R. E. FRAZIER.....Charlotte, N. C.
G. C. REID.....Norfolk, Norfolk Co., Va.; with Chas.
Reid Sons, Exporters; Norfolk, Va.
W. ROSENFELD.....Radford, Montgomery Co., Va.; Sales
Agent for State of Alabama, Jas. Rosenheim Shoe Co., Savannah, Ga.; address, Box 148, Birmingham, Ala.

COURSE OF GENERAL SCIENCE

F. S. ROOP.....Childress, Montgomery Co., Va.; Physician; Blacksburg, Va.
H. A. WISE.....Craddocksville, Accomac Co., Va.; Superintendent High School; Jonesville, S. C.
J. H. WOOLWINE....."97;" Pilot, Montgomery Co., Va.; Merchant; Blacksburg, Va.

COURSE OF CIVIL ENGINEERING

J. A. BURRUSS.....Richmond, Henrico Co., Va.; President State Normal and Industrial School for Women; Harrisonburg, Va.

COURSE OF MECHANICAL ENGINEERING

- E. GRAHAM.....Richmond, Henrico Co., Va.; Manager
Gulf Red Cedar Co., Paint Rock, Ala.,
and Lebanon, Tenn.; address, Lebanon,
Tenn.
- J. S. A. JOHNSON.....Cismont, Albemarle Co., Va.; Professor
Experimental Engineering, V. P. I.;
Blacksburg, Va.
- J. I. PALMER.....Roanoke, Roanoke Co., Va.; with Win-
ston-Salem Southbound Railway Co.;
Winston-Salem, N. C.
- E. S. SMITH.....Danville, Pittsylvania Co., Va.; Mechan-
ical Engineer and Asst. Superintendent
Broomell, Schmidt & Stearcy Co.;
address, 455 Park St., York, Penn.
- D. M. TAYLOR.....Chesterfield, Chesterfield Co., Va.;
Southern Plumbing and Heating Co.;
Richmond, Va.

COURSE OF ELECTRICAL ENGINEERING

- J. B. DANFORTH.....Richmond, Henrico Co., Va.; with
Southeastern Tariff Association; Atlan-
ta, Ga.
- F. M. WARING.....Charleston, S. C.; Test Department,
Pennsylvania R. R.; address, Univer-
sity Club, Altoona, Penn.
- O. F. WHITEHURST.....Norfolk, Norfolk Co., Va.; with General
Electric Co.; address, Provident Savings
Bank and Trust Co. Bldg., Cincinnati,
O.

POST-GRADUATE DEGREES

MASTERS OF SCIENCE

- W. C. EAKIN....."97." W. M. SCOTT....."96."

CIVIL ENGINEER

- E. J. KERFOOT....."97."

CLASS 1899—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

- J. G. FERNEYHOUGH....."98;" Stony Point, Albemarle Co., Va.;
State Veterinarian; Burkeville, Va.

COURSE OF APPLIED CHEMISTRY

- J. E. BONSAK.....Bonsack, Roanoke Co., Va.; Chemist,
with Colorado Fuel and Iron Co.;
Pueblo, Col.
- P. H. CARTER.....Chatham, Pittsylvania Co., Va.; Chemist,
Rome Testing Laboratory; Rome, Ga.
- J. S. PAINTER....."98;" Pulaski City, Pulaski Co., Va.;
Manager, Wilcox Turpentine Co.; Wil-
cox, Fla.
- E. A. SEAPARK.....Richmond, Henrico Co., Va.; Chief
Chemist for Asst. General Manager,
Oliver Iron Mining Co., Duluth Mine;
address, 1827 Greysolon Road.
- F. J. WILSON.....Harrisonburg, Rockingham Co., Va.;
Metallurgical Chemist in charge of the
Chilled Roll Department, United En-
gineering and Foundry Co.; Vander-
grift, Penn.

COURSE OF GENERAL SCIENCE

- C. G. ROREBECK.....Falls Church, Fairfax Co., Va.; Captain
Coast Artillery Corps; address, Fort
Monroe, Va.

COURSE OF CIVIL ENGINEERING

- C. L. ALLEN.....Buchanan, Botetourt Co., Va.; Resident
Engineer, Railroad Work for the New
River Co.; Beckley, W. Va.
- R. B. H. BEGG.....Bedford Springs, Campbell Co., Va.;
Associate Professor of Civil Engineering,
Syracuse University; Syracuse, N. Y.

- W. F. COX.....Cascadem, Pittsylvania Co., Va.; Asst. Engineer, Bridge Department, Virginian Railway; address, Norfolk, Va.
- P. A. HOBDAY.....Batesville, Albemarle Co., Va.; Contractor and Builder; Buchanan, Va.
- M. A. SALE.....Radford, Montgomery Co., Va.; formerly Instructor in Civil Engineering and Mathematics and First Asst. Commandant of Cadets, V. P. I.; died September 21st, 1900.

COURSE OF MECHANICAL ENGINEERING

- W. F. BELL.....Staunton, Augusta Co., Va.; formerly Mining Engineer Flat Top Coal Association; died November 22d, 1901, at Bramwell, W. Va.
- R. H. C. BEVERLY.....Broad Run, Fauquier Co., Va.; Inspecting Engineer, Southern Railway; care Southern Railway, Alexandria, Va.
- G. BOSWELL.....Richmond, Henrico Co., Va.
- A. B. HUBARD.....Colleen, Nelson Co., Va.; Mechanical Engineer, Midvale Steel Co.; Philadelphia, Penn.
- G. W. HUTCHINSON.....Staunton, Augusta Co., Va.; member of the firm of Turner-Hutchinson Co., Concrete Contractors and Engineers; 1111 E. Main St., Richmond, Va.
- B. S. JOHNSON.....North View, Mecklenburg Co., Va.; with Farlow Draft Gear Co.; Baltimore, Md.
- W. D. LIGON.....Shipman, Nelson Co., Va.; Manager D. & W. Fuse Co.; Providence, R. I.
- R. J. NEELY.....Portsmouth, Norfolk Co., Va.; Marine Engine and Boiler Draftsman, Manufacturing Department, U. S. Navy Yard; Portsmouth, Va.

COURSE OF ELECTRICAL ENGINEERING

- J. ADAMS....."98;" Lynchburg, Campbell Co., Va.; Tobacco Business; Lynchburg, Va.

- F. C. CARPER.....Salem, Roanoke Co., Va.; Test Engineer,
Norfolk & Western Railway; permanent address, Salem, Va.
- C. B. CONNELLY.....Winston, N. C.; Engineering Department,
General Electric Co.; Schenectady, N. Y.
- W. N. JONES, JR....."98;" Petersburg, Dinwiddie Co., Va.;
formerly a member of the firm of W. N. Jones & Sons; died at Petersburg, Va.,
March 18th, 1908.
- J. G. KINKLE.....Lynchburg, Campbell Co., Va.; with
Lynchburg Light and Traction Co.;
address, 1301 Clay St., Lynchburg, Va.

POST-GRADUATE DEGREES

MASTERS OF SCIENCE

- M. FERGUSON....."96."
- W. B. HARPER.....Wakefield, Mass.; Superintendent Wood
Distilling Plant, Noble Electric Steel
Co.; Heroult, Cal.
- S. H. SHEIB....."96."

MECHANICAL ENGINEER

- J. S. A. JOHNSON....."98."

CLASS 1900—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

- S. F. CHAPMAN.....Gordonsville, Orange Co., Va.; Farming
and Stock-raising; Gordonsville, Va.

COURSE OF APPLIED CHEMISTRY

- J. R. BROWN.....Greeneville, Tenn.; Vice-President Brown
Mfg. Co., Greeneville, Tenn., and St.
Louis, Mo.; home address, 5712 Ca-
banne Ave., St. Louis, Mo.

- C. F. BROWN.....Greenville, Tenn.; in Automobile Business; Salesrooms, 5143 Delmar Ave., St. Louis, Mo.
- W. C. BURNETT.....Norfolk, Norfolk Co., Va.; in charge U. S. Food Inspection Laboratory, Custom House; Savannah, Ga.
- J. W. JACOBS.....Berkley, Norfolk Co., Va.; in business with his father; Berkley, Va.
- G. D. WALTERS.....Christiansburg, Montgomery Co., Va.; Chemist, Colorado Fuel and Iron Co.; Pueblo, Col.

COURSE OF GENERAL SCIENCE

- R. B. BEAN.....Gala, Botetourt Co., Va.; Associate Professor of Anatomy, Philippine Medical School; Manila, P. I.
- G. L. FENTRESS.....Norfolk, Norfolk Co., Va.; Superintendent Atlantic City High School; Norfolk, Va.
- H. M. JACOBS.....Berkley, Norfolk Co., Va.; General Foreman Furnace Department, Mathieson Alkali Works; Saltville, Va.
- A. A. PHLEGAR.....Christiansburg, Montgomery Co., Va.; Secretary and Treasurer, Montgomery Electrical Co.; Christiansburg, Va.

COURSE OF CIVIL ENGINEERING

- H. R. HORTENSTINE.....Abingdon, Washington Co., Va.; Agent for Pennsylvania Bridge Co.; address, Box 1795, New Orleans, La.
- W. J. JAMIESON.....Buffalo Junction, Mecklenburg Co., Va.; Civil Engineer, Southern Pacific R. R., Ixtlandel Rio, Ter Tepic, Mexico; permanent address, Tucson, Ariz.
- L. L. JEWEL.....Christiansburg, Montgomery Co., Va.; Manager of Erection, McClintic-Marshall Construction Co.; Pittsburg, Pa.
- C. L. REYNOLDS.....Fall Creek Depot, Pittsylvania Co., Va.; Bridge and Structural Engineer; 775 37th St., Milwaukee, Wis.

COURSE OF MECHANICAL ENGINEERING

- G. F. BAKER.....Graham's Forge, Wythe Co., Va.; Principal High School; Spring Garden, Va.
- R. C. BEVERLY.....Chaplain, Essex Co., Va.; Contractor, Heating and Ventilating and Power Plants, associated with W. P. Longworth & Co.; home address, 611 E. Franklin St., Richmond, Va.
- J. R. HARDESTY.....Berryville, Clarke Co., Va.; Manager New Orleans Office of the Va. Bridge and Iron Co.; address, New Orleans, La.
- S. H. MCGREGOR.....Avon, Nelson Co., Va.; Draftsman; 122 E. North Ave., Alleghany, Pa.
- J. A. WADDELL.....Garths, Albemarle Co., Va.; Superintendent Spencer Heater Co., Vice-President Outlook Coal Co.; address, 824 Monroe Ave., Scranton, Pa.

COURSE OF ELECTRICAL ENGINEERING

- E. W. ALLEN.....Buchanan, Botetourt Co., Va.; Electrical Engineer, General Electric Co.; Schenectady, N. Y.
- R. E. CECIL.....Brookneal, Augusta Co., Va.; President, Thermo Water Lift Co., 101 Federal St., N. S., Pittsburg, Penn.; residence, Sewickley, Penn.
- J. A. JACKSON.....Richmond, Henrico Co., Va.; Power and Mining Department, General Electric Co.; 304 Clinton St., Schenectady, N. Y.
- J. W. LATANE.....Oak Grove, Westmoreland Co., Va.; Draftsman, Western Electric Co.; 1535 Adams Street, Chicago, Ill.
- E. P. WALLER.....Martinsville, Henry Co., Va.; General Electric Co.; Schenectady, N. Y.
- K. WEISEGER....."99," Richmond, Henrico Co., Va.; Assistant Chief Engineer, Southern Bell Telephone and Telegraph Company; Atlanta, Ga.

POST-GRADUATE DEGREES

MASTERS OF SCIENCE

H. H. HURT....."97." J. L. PHILLIPS....."97."
 H. L. PRICE....."98."

CIVIL ENGINEERS

C. L. ALLEN....."99." P. A. HOBDAY....."99."
 W. F. COX....."99." M. A. SALE....."99."

MECHANICAL ENGINEERS

W. F. BELL....."99." G. W. HUTCHINSON, "99."
 R. H. C. BEVERLEY....."99." B. S. JOHNSON....."99."

CLASS 1901—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

J. C. BROOKE.....Culpeper, Culpeper Co., Va.; Lawyer,
 Fendal Building; address, 427 4th St.,
 Washington, D. C.
 T. G. WOOD.....Priddy's, Albemarle Co., Va.; Professor
 of Agriculture; Director Experimental
 Demonstration Work, Burkeville High
 School; Burkeville, Va.

COURSE OF HORTICULTURE

W. A. P. MONCURE.....Williamsburg, James City Co., Va.; In-
 vestigator of Horticultural By-Products,
 Va. Experiment Station; Blacksburg,
 Va.

COURSE OF APPLIED CHEMISTRY

J. H. GIBBONEY.....Wytheville, Wythe Co., Va.; Chief
 Chemist, N. & W. Railway Co., Roan-
 oke, Va.; address, 414 13th Ave., S.
 W.
 J. B. HUFFARD.....Wytheville, Wythe Co., Va.; Metal-
 lurgist, Electro-Metallurgical Co.; Glen
 Ferris, W. Va.

- C. P. MILES.....Richmond, Henrico Co., Va.; Associate Professor of Modern Languages, V. P. I.; is now a Student in Modern Languages, Göttingen University, Göttingen, Germany.
- A. H. ROOP.....Childress, Montgomery Co., Va.; Laboratory Inspector, Bureau of Animal Industry, U. S. Department of Agriculture; 4193 South Holstead St., Chicago, Ill.

COURSE OF GENERAL SCIENCE

- J. T. KEISTER....."00;" Blacksburg, Montgomery Co., Va.; First Assistant Chemist, Dairy Laboratory, Bureau of Chemistry, U. S. Department of Agriculture; Washington, D. C.
- B. F. RANDOLPH....."00;" Colleen, Nelson Co., Va.; Medical Student, University College of Medicine; Richmond, Va.

COURSE OF CIVIL ENGINEERING

- J. N. ASHTON.....Portsmouth, Norfolk Co., Va.; Assistant Engineer, Seaboard Air Line Railway; Richmond, Va.
- C. W. COCHRAN....."98;" Winchester, Frederick Co., Va.; Resident Engineer, C. C. C. & St. Louis Railway; present address, 218 N. Market St., Galim, O.
- C. J. B. DECAMPS.....Greenville, S. C.; member of the firm of DeCamps & Cunningham, Consulting Engineers; Greenville, S. C.
- G. B. FORD.....Cartersville, Cumberland Co. Va.; Civil Engineer; Cartersville, Va.
- J. T. MARSHALL.....Kadesh, Pittsylvania Co., Va.
- F. POWELL.....Wytheville, Wythe Co., Va.; General Claim Agent, Carolina, Clinchfield and Ohio Railway; Johnson City, Tenn.

COURSE OF MECHANICAL ENGINEERING

- W. S. BRALLEY.....Walton Furnace, Wythe Co., Va.;
Switch Board Engineer, General Electric Company; Schenectady, N. Y.
- W. M. BRODIE.....Coleman's Falls, Bedford Co., Va.; Associate Professor of Mathematics and First Assistant Commandant, V. P. I.; Blacksburg, Va.
- R. W. CARPER.....Gala, Botetourt Co., Va.
- M. W. DAVIDSON.....Blacksburg, Montgomery Co., Va.; Professor of Mechanical Engineering, University of South Dakota; Vermillion, S. D.
- C. DERRICK.....Houston, Halifax Co., Va.; Assistant Engineer, Department of Engineering and Construction, Panama Canal; present address, Culebra, Canal Zone, Panama.
- J. H. GWATHMAY.....Beulahville, King William Co., Va.; address, Webb City, Mo.
- J. M. HICKS.....Bedford Springs, Campbell Co., Va.; with Red Jacket Consolidated Coal and Coke Co.; Red Jacket, Va.
- C. A. JACKSON.....Austinville, Wythe Co., Va.; Mechanical and Hydraulic Engineer for the Pelton Water Wheel Co.; 90 West St., New York, N. Y.
- S. TREVERTON.....Ivanhoe, Wythe Co., Va.; Foreman of Checking Squad in Drafting Room, Cambria Steel Co.; Johnstown, Penn.

COURSE OF ELECTRICAL ENGINEERING

- C. E. ALLEN.....Covington, Alleghany Co., Va.; Commercial Engineer in charge of Transformer Sales, Westinghouse Electric and Manufacturing Co.; present address, 12 Trenton Ave., Edgewood Park, Pittsburg, Penn.

- J. R. DUPRIEST.....Lynchburg, Campbell Co., Va.; Chief Draftsman Gas Engineering Department, Mt. Vernon, O.; address, 121 E. Chestnut St.
- A. H. FLEET.....Lynchburg, Campbell Co., Va.; Electrical Engineer, Southern Railway; Knoxville, Tenn.
- E. C. HALL.....Richmond, Henrico Co., Va.; District Manager, General Acoustic Co.; address, 1420 New York Ave., Washington, D. C.
- J. E. LEAR.....Manchester, Chesterfield Co., Va.; Assistant Professor of Electrical Engineering, Agricultural and Mechanical College; College Station, Tex.
- W. L. MANN.....Cobham, Albemarle Co., Va.; Assistant Superintendent, Shaw Water and Power Co.; Box 2291, Montreal, Can.
- W. S. MOFFETT.....Brookwood, Augusta Co., Va.; Farmer, Heating and Ventilating Engineer; Staunton, Va., R. F. D. No. 2.
- S. D. S. PRESTON.....Abingdon, Washington Co., Va.; Chemist in Shipping Department, Mathieson Alkali Works; Saltville, Va.
- F. J. RUDD.....Hampton, Elizabeth City Co., Va.; Motor Engineering Department, General Electric Co.; address, Humphrey St., Swampscott, Mass.
- R. WOLTZ.....Gala, Botetourt Co., Va.; Electrical Expert, Asheville Electric Co.; address, Box 675, Asheville, N. C.
- M. G. YOUNG.....Richmond, Henrico Co., Va.; Electrical Engineer, with Allgemeine Elektrizitäts-Gesellschaft, Berlin, Germany; address, Bayrauther Str. No. 2 III, Berlin, W. Germany.

POST-GRADUATE DEGREES

MASTERS OF SCIENCE

G. L. FENTRESS....."00." A. A. PHLEGAR...."00."

CIVIL ENGINEERS

R. B. H. BEGG....."99." H. R. HORTENSTINE, "00."

MECHANICAL ENGINEERS

J. B. CARPER....."95." J. A. WADDELL...."00."

CLASS 1902—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

I. T. JACOBS....."01;" Orange, Orange Co., Va.; Pastor
Franklin Street Baptist Church; Lynch-
burg, Va.

COURSE OF HORTICULTURE

W. J. PHILLIPS.....Miona, Accomac Co., Va.; Assistant En-
tomologist, Bureau of Entomology, U.
S. Department of Agriculture, Wash-
ington, D. C.; present address, Univer-
sity of Illinois, Urbana, Ill.

COURSE OF APPLIED CHEMISTRY

J. D. BURRALL.....Richmond, Henrico Co., Va.; with Rich-
mond Cedar Works; address, Plymouth,
N. C.
C. W. HARRISON.....Cartersville, Cumberland Co., Va.; in
charge of Branch Laboratory, Division
of Food, U. S. Department of Agricul-
ture; address, New Orleans, La.
P. S. MURRILL.....Blacksburg, Montgomery Co., Va.;
P.-O. Department, Railroad Mail Serv-
ice; address, Blacksburg, Va.

- J. I. PALMORE.....Cartersville, Cumberland Co., Va.; Assistant Chemist, Bureau of Chemistry, Department of Agriculture, Washington, D. C.; address, College Park, Md.
- A. H. SAYERS.....Baron Springs, Wythe Co., Va.; formerly Veterinary Surgeon; died at North Fork, W. Va., September 8th, 1908.

COURSE OF GENERAL SCIENCE

- R. B. BEVERLY.....Caret, Essex Co., Va.; Farming; Caret, Va.
- J. M. BLAND.....Shackelford, King and Queen Co., Va.; Physician; Boykins, Va.
- H. P. BROWN.....Briarfield, Bedford Co., Va.; Physician.
- H. L. DAVIDSON.....Blacksburg, Montgomery Co., Va.; Assistant Chemist, Bureau of Chemistry, Department of Agriculture; Richmond, Va.
- W. N. McANGE, JR.....Suffolk, Nansemond Co., Va.; address, Jackson, Tenn.
- R. W. WILLIAMS....."01;" Wytheville, Wythe Co., Va.; Lawyer; Wytheville, Va.

COURSE OF CIVIL ENGINEERING

- J. M. BRYANT.....Martinsville, Henry Co., Va.; Chief Engineer, Utah Land Irrigation Co.; Lock Box 144, Myton, Utah.
- C. J. FRENCH, JR.....Bluff City, Giles Co., Va.; Assistant Engineer, Norfolk & Western Railway Co.; address, Box 188, Bedford City, Va.
- H. G. McCORMICK.....Fairfield, Rockbridge Co., Va.; with U. S. Government River Improvement; address, Thirteen, Ky.; permanent address, Raphine, Va.
- G. R. TALCOTT.....Bon Air, Chesterfield Co., Va.; Assistant Resident Engineer, Wheeling, W. Va.; permanent address, 1724 Grove Ave., Richmond, Va.

- J. W. C. WEST.....Portsmouth, Norfolk Co., Va.; Dealer
in Telegraph and Telephone Poles,
Portsmouth, Va.; address, 917 Bank of
Commerce Building, Norfolk, Va.
- W. A. YOWELL.....Culpeper, Culpeper Co., Va.; Instructor
in Sloyd; School, Va.

COURSE OF MECHANICAL ENGINEERING

- A. O. ARVIN.....Double Bridge, Lunenburg Co., Va.;
Estimator, American Locomotive Works,
Richmond Branch American Locomotive
Co.; Richmond, Va.
- R. H. BUCHANAN, JR....Brownsburg, Rockbridge Co., Va.; Gen-
eral Superintendent, Ashman and Ma-
dena Hill Coal Mining Co.; Philipsburg,
Penn.
- W. L. CHEWNING.....Richmond, Henrico Co., Va.; Superin-
tendent Front Street Gas Works; New-
ark, N. J.
- C. L. COOK.....Bon Air, Chesterfield Co., Va.; Chief
Draftsman, Fairmont Mining and
Machinery Co.; Fairmont, W. Va.
- A. DAVIDSON.....Farmville, Prince Edward Co., Va.; Dis-
trict Engineer, Southern District, The
Westinghouse Machine Co.; address,
1326 Candler Building, Atlanta, Ga.
- A. L. HASKELL.....Columbia, S. C.; Commercial Engineer,
National Carbon Co.; Cleveland, O.
- P. T. JONES, JR.....Corinth, Miss.; Secretary Corinth Engine
and Boiler Works; Corinth, Miss.
- H. B. MISH.....Middlebrook, Augusta Co., Va.; Junior
Engineer, U. S. Engineering Service;
address, 206 7th St., East Liverpool, O.
- W. W. NEALE.....Bowler's Wharf, Essex Co., Va.; Gen-
eral Foreman in charge of Baltimore &
Ohio Railway Shops; Parkersburg, W.
Va.

- C. D. NEWMAN.....Magraders, York Co., Va.; with Isthmian Canal Commission, Pacific Division, Lock and Dam Construction; address, Crozal, Canal Zone, Isthmus of Panama.
- C. L. PROCTOR.....Drake's Branch, Charlotte Co., Va.; General Superintendent, Athens Electric Railway Co.; Athens, Ga.
- J. M. SAMPLE....."01;" Hopewell, N. C.; President and Treasurer, Peninsula Fruit Corporation; Pampona, Fla.
- W. F. TAMS.....Staunton, Augusta Co., Va.; Vice-President and General Manager, Gulf Smokeless Coal Co.; Gulf, W. Va.
- W. P. TAMS.....Staunton, Augusta Co., Va.; Engineer Maintenance of Way, Chesapeake & Ohio Railway Co.; Richmond, Va.
- R. C. TURNER.....The Plains, Fauquier Co., Va.; Superintendent of Construction, Indiana Engineering Co.; present address, 204 State Building, Indianapolis, Ind.
- W. T. WILSON.....Williams Mill, Lunenburg Co., Va.
- T. M. YANCEY.....Buffalo Junction, Mecklenburg Co., Va.
- W. T. YOUNG.....Corinth, Miss.; Salesman for Corinth Engine and Boiler Works; present address, 615 Filmore St., Corinth, Miss.

COURSE OF ELECTRICAL ENGINEERING

- R. T. BROOKE....."01;" Sutherlin, Pittsylvania Co., Va.; Sales Agent, General Electric Co.; address, Empire Building, Atlanta, Ga.
- F. D. BROWN.....Baltimore, Md.; Superintendent Aerial Tramway Co.; Charleston, W. Va.
- J. T. BROWN.....Baltimore, Md.; Engineer with E. I. du Pont de Nemours Powder Co.; Pinole, Cal.
- J. C. DANTZLER.....Greenville, S. C.; Motor Engineering Department, General Electric Co.; Lynn, Mass.

- E. NEWNHAM.....Columbia, S. C.; Designing Engineer A. C. Motors, General Electric Co.; address, 154 Appleton Ave., Pittsfield, Mass.
- N. C. POE, JR.....Greenville, S. C.; Hardware Salesman, Wilkins-Poe Hardware Co.; Greenville, S. C.
- C. B. SEAGLE.....Wytheville, Wythe Co., Va.

POST-GRADUATE DEGREES

CIVIL ENGINEERS

- J. T. MARSHALL....."01." L. L. JEWEL....."00."

MECHANICAL ENGINEERS

- G. BOSWELL....."99." R. E. CECIL....."00."
- W. S. BRALLEY....."01." M. W. DAVIDSON... "01."
- W. M. BRODIE....."01." J. M. HICKS....."01."
- J. M. SAMPLE....."02."

CLASS 1903—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

- R. SALE.....Chance, Essex Co., Va.
- J. H. VANDYKE.....Westend, Fairfax Co., Va.; Farming; Falls Church, Va.

COURSE OF HORTICULTURE

- E. F. COLE.....Flint, Floyd Co., Va.; Scientific Assistant, Bureau of Plant Industry, U. S. Department of Agriculture; Washington, D. C.
- A. A. GIRAULT.....Annapolis, Md.; Assistant in Entomology, University of Illinois; Urbana, Ill.
- W. J. PRICE, JR.....Price's Fork, Montgomery Co., Va.; Assistant State Entomologist, Virginia Crop Pest Commission; Blacksburg, Va.
- E. A. ROADS....."89."

COURSE OF APPLIED CHEMISTRY

- H. R. KEISTER.....Blacksburg, Montgomery Co., Va.;
Chemist, Dunellon Phosphate Co. and
Barker Chemical Co.; Rockwell, Fla.
- R. LYBROOK.....Blacksburg, Montgomery Co., Va.;
Chief Chemist, Maryland Portland Ce-
ment Co.; Security, Md.
- M. F. WOLTZ.....Gala, Botetourt Co., Va.; Chemist, Leas
& McVitty, Philadelphia, Penn.; pres-
ent address, Box 22, Salem, Va.

COURSE OF PREPARATORY MEDICINE

- H. C. MICHIE.....Charlottesville, Albemarle Co., Va.;
Physician in the Medical Reserve Corps,
U. S. Army, Army Medical School;
Washington, D. C.

COURSE OF GENERAL SCIENCE

- W. W. DAVIDSON.....Middletown, Frederick Co., Va.; Pro-
fessor of Mathematics and Physics,
Powhatan College; Charlestown, W.
Va.
- W. E. VAUGHT.....Newport, Giles Co., Va.; formerly As-
sistant in Wood Work, V. P. I.; died
at Newport, Va., August 27th, 1903.

COURSE OF CIVIL ENGINEERING

- C. H. CARPENTER....."02;" Clifton Forge, Alleghany Co.,
Va.; Railroad Contracting; Clifton
Forge, Va.
- J. S. COUNSELMAN.....Graham's Forge, Wythe Co., Va.; Head
of Department of Mathematics, Bir-
mingham High School; Birmingham,
Ala.
- L. O'SHAUGHNESSY.....South Solon, Madison Co., O.; Instructor
in Mathematics, University of Pennsyl-
vania, Philadelphia, Penn.; present ad-
dress, 3332 Chestnut St.
- S. A. OBENSHAIN....."02;" Fincastle, Botetourt Co., Va.

COURSE OF MECHANICAL ENGINEERING

- R. I. ARCHER.....Richmond, Henrico Co., Va.; died January 13th, 1908, at Richmond, Va.
- W. L. BLAIR.....Burwellville, Pittsylvania Co., Va.; Farming; Rondo, Va.
- G. M. BUHRMAN.....Gala, Botetourt Co., Va.
- G. W. GILMER, JR.....Howardsville, Albemarle Co., Va.; Vice-President, General Superintendent and Director, L. H. Gilmer Co., Manufacturers of Endless Belts; address, 52 North 7th St., Philadelphia, Penn.
- C. B. KEARFOOT.....Martinsville, Henry Co., Va.; Practising Architect, member of the firm of Pember & Kearfoot, Nickles Building, Bristol, Va.; address, Box 293.
- J. T. NEELY.....Portsmouth, Norfolk Co., Va.; Superintendent of Construction of a large mill building in Detroit, Mich.; McClintic-Marshall Con. Co.; Pittsburg, Penn.
- G. H. WATKINS....."02;" Charlotte Court-House, Va.; Motive Power Inspector, Pennsylvania Railroad, West Philadelphia Shops; West Philadelphia, Penn.
- E. W. WHISTNANT.....Hamlet, N. C.; formerly Superintendent Construction, Railroad Contracting; died at Charlotte, N. C., August 14th, 1906.

COURSE OF ELECTRICAL ENGINEERING

- C. L. BALL.....Leesburg, Loudoun Co., Va.; Sales Department, Fort Wayne Electric Co.; Fort Wayne, Ind.
- G. A. CHALKLEY.....Big Stone Gap, Wise Co., Va.; Manager Simmer and Jack East, Limited; address, Box 47, Germiston, Transvaal, South Africa.
- J. J. COBBS.....Callands, Pittsylvania Co., Va.

- H. B. GOODLOE.....Afton, Albemarle Co., Va.; Sales Agent
General Electric Company; present ad-
dress, Box 317, Roanoke, Va.
- R. E. HOLLISTER....."02;" Hillburn, N. Y.
- B. MILLER....."02;" Greenville, S. C.; Station Atten-
dant Mira Flures Paner Station, Coro-
zal, Canal Zone.
- G. C. MILLER....."02;" Lynchburg, Campbell Co., Va.;
Electrician Glamorgan Pipe and Foun-
dry Co.; Lynchburg, Va.
- A. G. PRITCHETT.....Byrdsville, Pittsylvania Co., Va.; Assist-
ant Engineer, Southern Railway; Bir-
mingham, Ala.
- F. M. SPILLER....."02;" Wytheville, Wythe Co., Va.; Sec-
retary of the Dixie Casualty and Se-
curity Co.; Jackson, Tenn.
- S. M. SPILLER....."02;" Wytheville, Wythe Co., Va.; with
Engineering Department, Western Elec-
tric Company; Chicago, Ill.
- J. R. WERTH, JR.....Richmond, Henrico Co., Va.; Lighting
Engineering Department, General Elec-
tric Co.; Schenectady, N. Y.

POST-GRADUATE DEGREES

MASTERS OF SCIENCE

- | | |
|--------------------------|-------------------------|
| H. L. DAVIDSON....."02." | C. P. MILES....."01." |
| C. W. HARRISON....."02." | W. A. P. MONCURE, "01." |
| J. T. KEISTER....."01." | W. J. PHILLIPS...."02." |
| T. G. WOOD....."01." | |

CIVIL ENGINEERS

- | | |
|-------------------------|-------------------------|
| G. R. TALCOTT....."02." | J. W. C. WEST....."02." |
|-------------------------|-------------------------|

MECHANICAL ENGINEERS

- | | |
|-------------------------|--------------------------|
| A. O. ARVIN....."02." | W. F. TAMS....."02." |
| C. A. JACKSON....."01." | W. P. TAMS, JR....."02." |
| P. T. JONES....."02." | W. T. WILSON....."02." |
| C. L. PROCTOR....."02." | W. T. YOUNG....."02." |

CLASS 1904—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

- C. F. BAUMAN.....Fredericksburg, Spottsylvania Co., Va.;
Jenks Electrical Co.; Richmond, Va.
R. U. DRINKARD.....Diuguid, Campbell Co., Va.; Physician;
Wheeling, W. Va.

COURSE OF HORTICULTURE

- C. E. CRAIG.....Patrick, Ind.; Assistant in Agronomy,
Purdue University; 461 Vine St., West
Lafayette, Ind.
W. H. DEAN, JR.....Richmond, Henrico Co., Va.; Field
Agent, Bureau of Entomology, U. S.
Department of Agriculture; Washing-
ton, D. C.
A. H. ROSENFELD.....Radford, Montgomery Co., Va.; Ento-
mologist and Plant Pathologist, Esfacien
Experimental Agricola; address, Tucuman,
Argentina.
J. C. STILES.....Elliston, Montgomery Co., Va.; Profess-
or of Agriculture, Agricultural High
School, 3d Congressional District; ad-
dress, Chester, Va.

COURSE OF APPLIED CHEMISTRY

- E. W. BUTLER.....Lowmoor, Alleghany Co., Va.; Chemist;
Wellston, O.
H. L. CORRELL.....Roanoke, Roanoke Co., Va.
P. K. COUK.....Jonesville, Lee Co., Va.; Head of Ship-
ping Department, Mathieson Alkali
Works; Saltville, Va.
J. J. DAVIS, JR.....Norfolk, Norfolk Co., Va.; Instructor
in Modern Languages, V. P. I.; Blacks-
burg, Va.
J. R. EOFF, JR.....Christiansburg, Montgomery Co., Va.;
Assistant Chemist, Enological Section,
Bureau of Chemistry, U. S. Department
of Agriculture; Washington, D. C.; per-
manent headquarters, Charlottesville, Va.

- F. D. HARDESTY Berryville, Clarke Co., Va.; Laboratory Assistant, Bureau of Animal Industry; New York City.
- J. N. HYDE Winchester, Frederick Co., Va.; Assistant Manager, F. Gray Clothing Co., Boston, Mass.; address, Western, Mass.
- M. M. MORRISS, JR. Chief Chemist, American Lime and Stone Co., of Bellefont, Penn.
- J. W. WILSON Lewisburg, W. Va.

COURSE OF GENERAL SCIENCE

- L. C. CHOWNING "03;" Millenbeck, Lancaster Co., Va.; Superintendent, Corning City Pumping Station; Corning, N. Y.

COURSE OF CIVIL ENGINEERING

- L. P. BELL Staunton, Augusta Co., Va.
- J. L. HORTENSTINE Abingdon, Washington Co., Va.; U. S. Junior Civil Engineer; Burwood, La.
- J. W. HORTENSTINE Abingdon, Washington Co., Va.; Supervisor Municipal Engineering, Atlantic District, Panama Canal Commission; Gatun, Canal Zone.
- R. L. LINDSAY Allisonia, Pulaski Co., Va.; General Contractor, Municipal and Railway Work; address, 111 Henry St., Roanoke, Va.
- F. L. MARTIN Portsmouth, Norfolk Co., Va.
- C. H. MOOREFIELD Crystal Hill, Halifax Co., Va.; Instructor, Civil Engineering, V. P. I.; Blacksburg, Va.
- H. TIFFANY Landmark, Fauquier Co., Va.; Division Engineer's Office, Winston-Salem Southbound Railway Co.; Lexington, N. C.
- S. W. WILLIAMS, JR. Wytheville, Wythe Co., Va.; Lawyer; Bluefield, W. Va.
- D. E. WRIGHT Winchester, Frederick Co., Va.; Superintendent, Municipal Engineering Work; present address, Empire, Canal Zone.

COURSE OF MECHANICAL ENGINEERING

- G. W. COOK.....Mt. Sidney, Augusta Co., Va.; died January 16th, 1907, at Fort Defiance, Va.
- W. R. CRUTE....."03;" Farmville, Prince Edward Co., Va.; Assistant Master Mechanic, Mathieson Alkali Works; Saltville, Va.
- H. H. GARY.....Franklin, Southampton Co., Va.; Chief Mechanical Engineer, Birmingham Coal and Iron Co.; 910 Brown Marx Building, Birmingham, Ala.
- J. A. B. GIBSON.....Richmond, Henrico Co., Va.; Mechanical Engineer, Richmond, Fredericksburg & Potomac Railroad; Richmond, Va.
- J. B. HEARD.....Lynchburg, Campbell Co., Va.; Architect; Lynchburg, Va.
- J. M. A. JOHNSTON.....Salem, Roanoke Co., Va.; Consulting Engineer; 203 Bank of Richmond Building, Richmond, Va.
- G. T. LEE.....Bedford Springs, Campbell Co., Va.; Draftsman, Mathieson Alkali Works; Saltville, Va.
- C. C. OSTERBIND....."03;" Richmond, Henrico Co., Va.; with Tredegar Works; address, 200 East Cary St., Richmond, Va.
- F. L. ROBESON.....Farmville, Prince Edward Co., Va.; Superintendent, Farmville Manufacturing Co.; Farmville, Va.
- G. C. ROBESON.....Farmville, Prince Edward Co., Va.; Student, Department of Architecture, University of Pennsylvania, Philadelphia, Penn.; present address, 3722 Locust St.
- G. H. SCOTT.....Gordonsville, Orange Co., Va.; Engineering Department, Virginia-Carolina Chemical Co.; address, Box 841, Charleston, S. C.

- W. J. WHEELER.....Patterson, Rockingham Co., Va.; 1st Lieutenant, U. S. Revenue Cutter "Bear," San Diego, Cal.; permanent address, Treasury Department, Washington, D. C.
- W. E. WINE.....Bridgewater, Rockingham Co., Va.; Engineer of Shop Construction, Atlantic Coast Line Railway; Rocky Mount, N. C.
- F. M. YOST.....Staunton, Augusta Co., Va.; American Can Co., Brooklyn, N. Y.; address, 131 Willoughby Ave.

COURSE OF ELECTRICAL ENGINEERING

- W. A. ANDERSON, JR.....Richmond, Henrico Co., Va.; Superintendent, Radford City Schools; Radford, Va.
- B. BOLLING, JR....."03;" Charlottesville, Albemarle Co., Va.; Master Mechanic, McDowell Coal and Coke Co.; McDowell, W. Va.
- F. R. BUTLER.....Low Moor, Alleghany Co., Va.; Roundhouse Foreman, Chesapeake & Ohio Railway; Handley, W. Va.
- C. C. CAMPBELL....."03;" Roanoke, Roanoke Co., Va.; Westinghouse Electric and Manufacturing Co.; address, 2429 Woodward Ave., Detroit, Mich.
- W. M. CHILTON.....Lancaster, Lancaster Co., Va.; died in Richmond, Va., June 16th, 1905.
- F. V. GANTT.....Lynchburg, Campbell Co., Va.; Commercial Engineering, General Electric Co.; present address, General Electric Co., Cincinnati, O.
- H. I. GUY.....Bedford City, Bedford Co., Va.; Railway Department, General Electric Co., Schenectady, N. Y.; address, 27 Front St.

- M. Y. HEATH.....Naruna, Campbell Co., Va.; Commercial Department, General Electric Co., Cincinnati Office, General Electric Co., Cincinnati, O.
- C. C. HETH.....East Radford, Montgomery Co., Va.; 1st Lieutenant, U. S. Army; address, Fortress Monroe, Va.
- S. T. HUGHES.....Trenton, S. C.; Secretary, and member of the firm of Manger, Hughes & Manger, 477-479 19th Ave., New York, N. Y.; permanent address, 454 West 58th St., New York, N. Y.
- P. G. LIGON.....Broadus, Nelson Co., Va.; Consulting Engineer and Contractor; permanent address, Dublin, Ga.
- C. J. PERKINS.....Carysbrook, Fluvanna Co., Va.; General Electric Co.; Branch Office, Cincinnati, O.
- J. P. PALMER....."03;" Greenville, Augusta Co., Va.; with General Electric Co.; Schenectady, N. Y.
- J. E. SMITH, JR.....Clifton Forge, Alleghany Co., Va.
- G. W. WADE.....Christiansburg, Montgomery Co., Va.; Transformer, Engineering Department, General Electric Co.; address, 501 North St., Pittsfield, Mass.
- T. H. WALKER.....Newport News, Warwick Co., Va.; General Electric Co.; Lynn, Mass.
- L. W. WEBB.....Norfolk, Norfolk Co., Va.; Master Electrician, U. S. Navy Yard; address, Manufacturing Department, Navy Yard, Norfolk, Va.
- J. T. WHITE.....Danville, Pittsylvania Co., Va.; Assistant Postmaster; Blacksburg, Va.
- W. J. WALSH....."03;" Norfolk, Norfolk Co., Va.

POST-GRADUATE DEGREES

MASTERS OF SCIENCE

- P. S. MURRILL....."02." J. I. PALMORE....."02."

- J. E. B. SMITH.....Price's Fork, Montgomery Co., Va.;
Principal, Christiansburg High School
and Deputy County Clerk, Montgomery
Co.; Christiansburg, Va.
- J. F. STRAUSS....."94."

CIVIL ENGINEERS

- J. S. COUNSELMAN....."03." S. A. OBENSHAIN... "03."
- L. O'SHAUGHNESSY....."03."

MECHANICAL ENGINEERS

- R. I. ARCHER....."03." G. A. CHALKLEY... "03."
- W. L. BLAIR....."03." W. R. CRUTE....."04."
- G. M. BUHRMAN....."03." J. T. NEELY....."03."
- C. C. OSTERBIND....."04."

CLASS 1905—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

- J. E. BUCK.....Ceres, Bland Co., Va.; Field Agent, U.
S. Department of Agriculture; Napa,
Cal.
- L. C. BURTON.....Crewe, Nottoway Co., Va.; Student,
University College of Medicine; Rich-
mond, Va.
- D. M. CLOYD.....Dublin, Pulaski Co., Va.; Farming; ad-
dress, Cambria, Va., R. F. D. No. 1.
- W. C. LATANE, JR.....Westmoreland, Westmoreland Co., Va.;
Forest Assistant, Bighorn National For-
est; Bighorn, Wyo.
- R. S. MOFFETT.....Staunton, Augusta Co., Va.; Farming
and Stock-raising; Staunton, Va., R. F.
D. No. 2.
- A. P. SPENCER.....Brooklin, Ontario, Can.; Principal, Elk
Creek High School, 5th District Agri-
cultural School; Elk Creek, Va.
- J. H. SQUIRES.....Lenoir, N. C.; Associate Professor of
Agronomy, College of Agriculture and
Mechanic Arts; address, Agricultural
College, N. M.

- F. S. WALKER.....Orange, Orange Co., Va.; Superintendent Farm, Woodberry Forest School; Orange, Va.
- E. P. WOOD.....Priddy's, Albemarle Co., Va.; member of firm of Wood & Chaning, Veterinary Physicians and Surgeons; 205 South St., Portsmouth, Va.

COURSE OF HORTICULTURE

- C. MOREHEAD.....Pulaski, Pulaski Co., Va.; Industrial Department C. C. & O. Railway; present address, Johnson City, Tenn.
- B. C. WATKINS.....Hallsboro, Chesterfield Co., Va.; member of the firm of J. B. Watkins & Bros., Proprietors of the Elmwood Nurseries; Midlothian, Va.

COURSE OF APPLIED CHEMISTRY

- P. M. SHUEY.....Charlottesville, Albemarle Co., Va.; Chemist, Mutual Mining Co.; Dutton, Fla.
- D. D. SPILLER.....Wytheville, Wythe Co., Va.; Student, Sugar School, Louisiana State University; Baton Rouge, La.
- J. W. STINESPRING.....Daphna, Rockingham Co., Va.; Chemist, Virginia-Carolina Chemical Co. Station; Saluria, N. C.
- E. P. WHITMAN....."04;" Pulaski, Pulaski Co., Va.; Chemist; Middlesboro, Ky.
- J. A. WILSON.....Lexington, Rockbridge Co., Va.; Assistant Chemist, E. I. duPont de Nemours Powder Co.; address, Penn Grove, N. J.
- W. F. WILSON.....Arrington, Nelson Co., Va.; Chemist, J. H. Heald & Co.; Lynchburg, Va.
- W. W. WOOD.....Baldwin, Botetourt Co., Va.; Chemist, Longdale Iron Co.; Longdale, Va.

- H. WYSOR....."02;" Dublin, Pulaski Co., Va.; Assistant Professor Chemistry and Metallurgy, Lafayette College; Easton, Penn.

COURSE OF PREPARATORY MEDICINE

- W. L. COWLES.....Williamsburg, James City Co., Va.

COURSE OF GENERAL SCIENCE

- V. C. BARKER.....Mendola, Washington Co., Va.; Student, Law Department University of Virginia and Sales Manager, Harper Pottery Co.; address, Charlottesville, Va.
- G. BASKERVILLE....."98;" Baskerville, Mecklenburg Co., Va.; Physician; Winona, Miss.
- W. M. PRIDDY.....Keysville, Charlotte Co., Va.; Assistant Manager, Jas. C. Hunt Grain Co.; Wichita Falls, Tex.

COURSE OF CIVIL ENGINEERING

- G. M. BARCLAY....."04;" St. Brides, Norfolk Co., Va.; Shift Boss, Knight's Deck, Limited; address, Box 143, Germiston, Transvaal, South Africa.
- J. E. BELL.....Wakefield, Sussex Co., Va.; Assistant Engineer, U. S. Reclamation Service; present address, Cody, Wyo.
- J. BOLTON.....Richmond, Henrico Co., Va.; Construction Engineer, care of E. P. Omsley, Atlanta, Ga.
- F. L. GIBBONEY.....Wytheville, Wythe Co., Va.; City Engineer, Roanoke, Va.; address, 424 Salem Ave.
- H. S. GIBBONEY.....Wytheville, Wythe Co., Va.
- A. C. GILKERSON.....Fishersville, Augusta Co., Va.
- R. P. LATINE.....Tappahannock, Essex Co., Va.
- R. A. MYERS.....Charlotte, N. C.; in charge of U. S. Intra-Coastal Survey Party; present address, U. S. Engineer's Office, Charleston, S. C.

- W. G. MYERS.....Harrisonburg, Rockingham Co., Va.;
Town and County Surveyor; Harrison-
burg, Va.
- G. E. NETTLETON.....Covington, Alleghany Co., Va.
- J. B. PIERSON.....Summit, Spottsylvania Co., Va.; Transit-
man, Philadelphia and Reading Coal
and Iron Co.; Matonay City, Penn.
- W. C. ROHR.....Harrisonburg, Rockingham Co., Va.;
Civil and Mining Engineer; present ad-
dress, Fairmont, W. Va.
- R. S. ROYER.....Roanoke, Roanoke Co., Va.; member of
the firm of Royer & Wood, Engineers
and Contractors; 506 Strickland Build-
ing, Roanoke, Va.
- G. H. SYKES.....Ellicott City, Md.; Assistant Engineer,
State Roads Commission; Baltimore,
Md.
- R. S. TROWER, JR.....Eastville, Northampton Co., Va.

COURSE OF MECHANICAL ENGINEERING

- C. G. BARRETT.....Portsmouth, Norfolk Co., Va.; Student,
Cornell University; address, 16 Casca-
dilla Park, Ithaca, N. Y.
- S. BOLLING, JR.....Staunton, Augusta Co., Va.; Turbine
Department, General Electric Co.; ad-
dress, Hotel Belcastle, Lynn, Mass.
- C. E. COYNER.....Dooms, Augusta Co., Va.; Switchboard
Design and State Arrangement Switch-
board Drafting Department, General
Electric Co.; present address, 805 Lin-
coln Cove, Schenectady, N. Y.
- J. D. FOSQUE.....Onancock, Accomac Co., Va.; with
Newport News Shipbuilding and Dry
Dock Co., Newport News, Va.; ad-
dress, 134 Victoria Ave., Hampton, Va.
- C. B. GARY.....Franklin, Southampton Co., Va.; with the
Albion Mining and Manufacturing Co.;
Newberry, Fla.

- C. K. HILDEBRAND.....Fishersville, Augusta Co., Va.; Draftsman with E. C. Wiley, Consulting Engineer; Lynchburg, Va.
- J. C. HOBSON.....Belona, Powhatan Co., Va.
- M. R. JOHNSON.....Cismont, Albemarle Co., Va.; Assistant Engineer, Tennessee Coal and Iron Co.; Ensley, Ala.
- L. L. KELLY....."04;" Glade Spring, Washington Co., Va.; Draftsman, Bridge Department, Norfolk & Western Railway, Roanoke, Va.; present address, Box 32, Salem, Va.
- C. L. LYON.....Richmond, Henrico Co., Va.; Assistant Superintendent, St. Augustine Gas and Electric Light Co.; present address, Box 747, St. Augustine, Fla.
- L. E. OSBORNE.....Ancella, Grayson Co., Va.; Platt Iron Works Co.; Dayton, O.
- R. C. PATTISON.....Roanoke, Roanoke Co., Va.; Foreman Locomotive Department, Virginian Railway; address, National Bank of Commerce, Room 1011, Norfolk, Va.
- E. W. SMITH.....Broadway, Rockingham Co., Va.; Motive Power Inspector, Pennsylvania Railroad Co.; present address, Room 354, Broad St. Station, Philadelphia, Penn.
- B. TYNES.....Tazewell, Tazewell Co., Va.; Law Department, University of Virginia; Charlottesville, Va.
- R. B. WATTS.....Stony Point, Albemarle Co., Va.; with Lane Brothers, Contractors; Sycamore, Va.
- E. J. F. WILSON.....Arrington, Nelson Co., Va.; Assistant Engineer, Office of Edgar C. Wiley, Consulting Engineer; Lynchburg, Va.

COURSE OF ELECTRICAL ENGINEERING

- L. H. BOYLE.....Ivy Depot, Albemarle Co., Va.; Installation Work in San Diego, Cal.; address, 3408 6th St., San Diego, Cal.

- W. S. BLUE.....Grafton, W. Va.; Sales Engineer, with the Westinghouse Electric and Manufacturing Co., of Pittsburg, Penn.; address, 408 New England Building, Kansas City, Mo.
- J. M. BRODIE.....Coleman's Falls, Bedford Co., Va.; Transformer Department, General Electric Co.; address, 9 Park St., Lynn, Mass.
- D. T. BROWN....."02;" Briarfield, Bedford Co., Va.
- S. E. CABELL.....Variety Mills, Nelson Co., Va.; Electrical Engineer, Virginia Iron, Coal and Coke Co.; Georgel, Va.
- A. C. HEUSER.....Wytheville, Wythe Co., Va.; Salesman, Westinghouse Electric and Manufacturing Co., Pittsburg, Penn.; address, Bluefield, W. Va.
- J. D. HUDGINS.....Richmond, Henrico Co., Va.
- J. D. JONES....."04;" Carysbrook, Fluvanna Co., Va.; Engineering-Sales Department, Western Electric Co., Philadelphia, Penn.; address, 5413 Walnut St., Philadelphia, Penn.
- W. B. LANKFORD.....Carysbrook, Fluvanna Co., Va.; with Southern Bell Telephone Co.; Norfolk, Va.
- R. H. McNUTT.....Ettna, Bland Co., Va.; Testing Department, General Electric Co., Schenectady, N. Y.; address, 525 Liberty St.
- W. O. PEALE....."04;" Waynesboro, Augusta Co., Va.; with Westinghouse Electric and Manufacturing Co., Pittsburg, Penn.; address, 7117 Race St., Homewood, Penn.
- D. G. ROBSON.....Mossy Creek, Augusta Co., Va.; Sales Engineer, with Westinghouse Electric and Manufacturing Co.; address, 409 New England Building, Kansas City, Mo.

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- R. H. SCLATER.....Hampton, Elizabeth City Co., Va.; with Newport News Shipbuilding and Dry Dock Co.; Newport News, Va.
- R. S. SCOTT.....Bedford City, Bedford Co., Va.
- L. STERN.....Richmond, Henrico Co., Va.
- W. M. WATKINS....."04;" Milton, N. C.; General Electric Co.; address, 84 State St., Boston, Mass.
- C. WILLIAMS....."02;" Lynchburg, Campbell Co., Va.; Mechanical Engineer; Lynchburg, Va.
- J. T. WILLIAMS, JR.....Lynchburg, Campbell Co., Va.; Signal Work for Norfolk & Western Railway, Williamson, W. Va.; permanent address, Signal Department, N. & W., Roanoke, Va.
- W. C. WILLIAMS....."04;" Orange, Orange Co., Va.
- A. R. WILSON.....Richmond, Henrico Co., Va.; Actuary, Eastern Life Assurance Co., of Virginia; 612 Citizens' Bank Building, Norfolk, Va.
- W. W. WINGO.....Richmond, Henrico Co., Va.; care of Richmond Iron Works, Richmond, Va.
- C. A. YARRINGTON.....Richmond, Henrico Co., Va.; with Westinghouse Electric and Manufacturing Co.; Pittsburg, Penn.

POST-GRADUATE DEGREES

MASTER OF SCIENCE

J. H. GIBBONEY....."01."

CIVIL ENGINEERS

G. M. BARCLAY....."04."	G. W. COOK....."04."
J. BOLTON....."02."	J. W. HORTENSTINE, "04."
J. M. BRYANT....."02."	R. L. LINDSAY....."04."
J. B. PIERSON....."04."	

MECHANICAL ENGINEERS

H. H. GARY.....	"04."	F. L. ROBESON.....	"04."
M. Y. HEATH.....	"04."	G. H. SCOTT.....	"04."
J. M. A. JOHNSTON.....	"04."	G. W. WADE.....	"04."
L. L. KELLY.....	"04."	C. WILLIAMS.....	"02."
L. E. OSBORNE.....	"05."	W. E. WINE.....	"04."
F. M. YOST.....		"04."	

CLASS 1906—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

T. B. HUTCHESON.....	Charlotte Court-House, Charlotte Co., Va.; Instructor in Agronomy, V. P. I.; Assistant Agronomist, Virginia Experiment Station; Blacksburg, Va.
W. B. OGLESBY.....	Draper, Pulaski Co., Va.
W. L. OWEN.....	Turbeville, Halifax Co., Va.; Bacteriologist, Louisiana Sugar Experiment Station; address, Audubon Park, New Orleans, La.
R. T. PRATT.....	Port Royal, Caroline Co., Va.
A. W. TAYLOR.....	Knoxville, Tenn.; with Mechanics Bank and Trust Co.; Knoxville, Tenn.
E. C. TURNER.....	The Plains, Fauquier Co., Va.; Farming; The Plains, Va.

COURSE OF HORTICULTURE

B. G. ANDERSON.....	Farmville, Prince Edward Co., Va.; Expert in charge of the Tobacco Sub-station at Appomattox, Va.
J. H. BROCE.....	Blacksburg, Montgomery Co., Va.; Farmer and Manager of Broce Nurseries; Blacksburg, Va.
A. W. DRINKARD, JR.....	West Appomattox, Appomattox Co., Va.; Assistant Horticulturist, Virginia Agricultural Experiment Station; Blacksburg, Va.
J. W. GRANDY, JR.....	Norfolk, Norfolk Co., Va.; Florist; 221 Granby St., Norfolk, Va.

COURSE OF APPLIED CHEMISTRY

- H. F. DAY....."05;" Danville, Pittsylvania Co., Va.;
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Fuel Co.; present address, Townley,
Ala.
- R. R. HENLEY.....Norfolk, Norfolk Co., Va.; Junior Lab-
oratory Inspector, Bio-Chemical Lab-
oratory, Bureau of Animal Husbandry,
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ington, D. C.; address, 915 N St., N.
W.
- R. J. WYSOR.....Dublin, Pulaski Co., Va.; Assistant
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quesne, Penn.; present address, 210
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COURSE OF PREPARATORY MEDICINE

- B. H. KYLE.....Buffalo Station, Nelson Co., Va.; Stu-
dent, Medical Department, University
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COURSE OF GENERAL SCIENCE

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COURSE OF CIVIL ENGINEERING

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Co.; 601 Mutual Building, Richmond,
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- R. L. DAVIS.....Newport News, Warwick Co., Va.

- J. DENMAN.....Ellenville, Ulster Co., N. Y.
- T. J. HARRIS.....Wakefield, Sussex Co., Va.; Erection Designing Department, McClintic-Marshall Construction Co., Pittsburg, Penn.; address, 804 Franklin Ave., Wilkinsburg, Penn.
- R. HORTENSTINE.....Abingdon, Washington Co., Va.; Draftsman, Pennsylvania Bridge Co.; address, Beaver Falls, Penn.
- C. P. HUNTER.....Ruther Glen, Caroline Co., Va.; with J. P. & L. J. Hunter, Engineers and Contractors; Oklahoma City, Okla.
- B. D. HYNES.....Elgin, Kane Co., Ill.
- W. R. JEWEL.....Christiansburg, Montgomery Co., Va.; with McClintic-Marshall Construction Co.; Pittsburg, Penn.
- T. A. H. MILLER.....Washington, D. C.; Surveyor, U. S. Naval Academy, Annapolis, Md.; present address, Hotel Maryland, Annapolis, Md.
- W. W. MELTON.....Clifton Forge, Alleghany Co., Va.
- M. M. NEALE.....Bowles Wharf, Essex Co., Va.
- C. W. OGDEN.....Berryville, Clark Co., Va.; in Designing and Estimating Department, Virginia Bridge and Iron Co.; Roanoke, Va.
- C. D. SNEAD.....Lynchburg, Campbell Co., Va.; State Highway Commission; Richmond, Va.
- E. H. TAYLOR.....Greenville, Greenville Co., S. C.; Instructor in Drawing and Descriptive Geometry, College of Civil Engineering, Cornell University; address, Quarry St., Ithaca, N. Y.
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- H. A. TREADWELL.....Elgin, Kane Co., Ill.; Junior Engineer, U. S. Reclamation Service, Camp 2; Sunnyside, Wash.

- R. A. TURNER.....Lynch's Station, Campbell Co., Va.;
Transitman, Temple & Northwestern
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Ry. Engineers, Gatesville, Tex.
- E. O. WHITESIDE.....Keysville, Charlotte Co., Va.
- A. D. WILLIAMS.....Culpeper, Culpeper Co., Va.; Civil En-
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- H. H. WILSON.....Richmond, Henrico Co., Va.; Civil En-
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Winston Co., Contractors for Ashakan
Reservoir; Brown Station, N. Y.

COURSE OF MECHANICAL ENGINEERING

- J. A. ARMSTRONG....."05;" Martinsburg, Berkley Co., W.
Va.; Student, Union Theological Sem-
inary; Richmond, Va.
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- E. CASTRO....."05;" Buenos Ayres, Argentine Repub-
lic; care of Dr. R. L. Castro, Brogado
F. C. O., Buenos Ayres, Argentine Re-
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- G. H. CUNNINGHAM.....Carrico, Culpeper Co., Va.; with Vir-
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- L. M. FUQUA.....Chester, Chesterfield Co., Va.; Gang
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- D. T. KENNEDY....."05;" Tinkling, Lunenburg Co., Va.;
Real Estate Dealer, Organizer and Pro-
moter of Corporations; Kenbridge, Va.
- F. M. LUCAS.....Childress, Montgomery Co., Va.; Erect-
ing Department, Westinghouse Machine
Co.; permanent address, Westinghouse
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- J. D. ROGERS.....Lexington, Rockbridge Co., Va.; Motive
Power Department, Virginian Railway;
Page, W. Va.

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- R. G. SUGDEN.....Hampton, Elizabeth City Co., Va.; Newport News Shipbuilding and Dry Dock Co.; Newport News, Va.
- E. F. WILSON, JR....."05;" Arrington, Nelson Co., Va.; Assistant Salesman, Buckeye Engine Co.; No. 1601 Arrott Building, Pittsburg, Penn.

COURSE OF ELECTRICAL ENGINEERING

- A. H. BELTRAN.....Oviedo, Spain.
- G. BLOCKSIDE.....Pulaski, Pulaski Co., Va.; with Westinghouse Electric and Manufacturing Co.; East Pittsburg, Penn.
- G. M. DAVIS.....Lynchburg, Campbell Co., Va.
- G. H. COULON.....Thibodeaux, LaFourche, La.; Electrical Correspondent; present address, 459 64th Ave., West Allis, Wis.; permanent address, S. and E. Department of the Allis-Chambers Co., West Allis, Wis.
- T. GARNETT.....Mathews, Mathews Co., Va.; with Tabulating Machine Co., Washington, D. C.; address, 1916 8th St., N. W.
- H. G. GOODMAN.....Waldrop, Louisa Co., Va.; Engineer, with Pioneer Telegraph and Telephone Co., Oklahoma City; address, 611 E. 10th St.
- A. M. HARRELSON....."05;" 1113 E. Clay St., Richmond, Henrico Co., Va.; Engineer, with Emerson Electric and Manufacturing Co.; St. Louis, Mo.
- C. F. HENDERSON.....Johnson City, Tenn.; Manager, Knoxville Office, Westinghouse Electric and Manufacturing Co.; address, Bank and Trust Building, Knoxville, Tenn.

- P. HOFFMAN.....Woodstock, Shenandoah Co., Va.
 M. HUNTER.....Ruther Glen, Caroline Co., Va.
 G. P. JACKSON.....Fentress, Norfolk Co., Va.; Testing Bureau, Brooklyn Rapid Transit Co.; 110 Chilton Ave., Brooklyn, N. Y.
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 E. A. MORRIS.....Charlottesville, Albemarle Co., Va.; Erection Department, Westinghouse Electric and Manufacturing Co., of Pittsburg, Penn.; now stationed in Philadelphia, Penn.; address, 108 N. 19th St.
 A. W. OBENSHAIN, JR...."05;" Fincastle, Botetourt Co., Va.; Assistant to Engineer M. P., Norfolk & Western Railway; Roanoke, Va.
 W. B. PRINCE.....Newsoms, Southampton Co., Va.
 C. M. SCHAEFER.....Lynchburg, Campbell Co., Va.; with Westinghouse Electric and Manufacturing Co., Pittsburg, Penn.; address, 417 Center St., Wilkinsburg, Penn.
 J. K. WHITE.....Waynesboro, Augusta Co., Va.; Electrical Contractor; Waynesboro, Va.

MASTERS OF SCIENCE

- A. H. ROSENFELD....."04." J. H. SQUIRES....."05."

CIVIL ENGINEERS

- J. E. BELL....."05." R. S. ROYER....."05."
 H. H. GARY....."04."

MECHANICAL ENGINEERS

- J. B. ARMSTRONG....."05." C. L. LYON....."04."
 C. B. GARY....."05." B. C. TYNES....."05."
 J. C. HOBSON....."05." E. J. F. WILSON...."05."
 M. R. JOHNSON....."05." E. F. WILSON, JR...."05."

CLASS 1907—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

- B. ANDERSON Rondo, Pittsylvania Co., Va.; Principal,
Darlington Heights High School; Dar-
lington Heights, Va.
- J. L. BISHOP Riner, Montgomery Co., Va.; Foreman,
Sharron Dairy; 495 Maryland Ave.,
S. W., Washington, D. C.
- P. S. BLANDFORD Gary, Lunenburg Co., Va.; Principal,
Kenbridge High School; Kenbridge, Va.
- E. B. FRED Round Hill, Loudoun Co., Va.; Student,
Göttengen University; Göttengen, Ger-
many.
- F. S. HOLMES Pine, Pulaski Co., Va.; Second Assistant
Commandant, V. P. I.; Blacksburg,
Va.
- J. R. HUTCHESON Charlotte Court-House, Charlotte Co.,
Va.; Principal of 7th Congressional Dis-
trict Agricultural High School; Middle-
town, Va.
- E. W. LAWSON Burkes Garden, Tazewell Co., Va.;
Farming; Burkes Garden, Va.

COURSE OF HORTICULTURE

- I. T. HOLT 251 Main St., Norfolk, Norfolk Co.,
Va.; Landscape Foreman; Cleveland,
O.
- J. T. ROGERS, JR. Society Hill, S. C.; with County Savings
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COURSE OF APPLIED CHEMISTRY

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- J. W. OLD Dorset, Powhatan Co., Va.; Chemist,
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H. S. STAHL.....Ashburn, Loudoun Co., Va.; Instructor
in Biology, V. P. I.; Blacksburg, Va.

COURSE OF PREPARATORY MEDICINE

J. O. MUNDY.....Huguenot, Albemarle Co., Va.

COURSE OF CIVIL ENGINEERING

A. G. ANDERSON.....Charlotte Court-House, Charlotte Co.,
Va.; Student, Department of Civil En-
gineering, University of Virginia; Char-
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W. C. BRINGMAN.....115 Mountain Ave., Roanoke, Roanoke
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Roanoke, Va.

F. M. COLLIER.....169 Green St., Annapolis, Md.; Mid-
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W. A. DUNN.....Wilmington, New Hanover Co., N. C.;
with Erie Railroad; Portageville, N. Y.

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Railway; Round Hill, Va.

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H. D. HODGSON.....74 Grace St., Norfolk, Norfolk Co.,
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74 Grace St., Norfolk, Va.

N. O. HOLT.....Spring Mills, Campbell Co., Va.; with
MacArthur Brothers & Winston; Brown
Station, N. Y.

H. W. KENT.....Kent's Store, Fluvanna Co., Va.

J. R. KIRK.....Port Norfolk, Norfolk Co., Va.; with
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mouth, Va.; also County Surveyor for
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- J. B. MAYNARD.....Portsmouth, Norfolk Co., Va.; Second Lieutenant, U. S. Army; permanent address, Portsmouth, Va.
- J. H. MINTON.....Smithfield, Isle of Wight Co., Va.; with Pennsylvania Lines west of Pittsburg, Eastern Division; present address, 305 Federal St. Station, Alleghany, Penn.
- H. V. NEWCOMB.....Craigsville, Augusta Co., Va.; Assistant Superintendent of Quarries for Virginia Portland Cement Co.; Craigsville, Va.
- A. K. NUTTY.....Abingdon, Washington Co., Va.; with Deschesteer Railroad Co.; Grass Valley, Ore.
- C. OSBORNE.....Saddle, Grayson Co., Va.; Locating Engineer, Irrigation Service; address, care of Arnold Co., Home, Idaho.
- R. J. PALMER.....West Point, King William Co., Va.; Civil Engineer; care of Santa Fe Engineering Corps, Sanangles, Tex.
- W. N. PREAS.....Kennette, Franklin Co., Va.; Junior Engineer, Unitah Irrigation Survey; Fort Duchesne, Utah.
- R. A. RUSSELL.....Lawyers, Campbell Co., Va.; Student, Law Department, Washington and Lee University; present address, Box 367, Lexington, Va.
- R. W. SMITH.....Glen Wilton, Botetourt Co., Va.; Merchant; Springwood, Va.
- C. G. SMOOT.....Langley, Fairfax Co., Va.; U. S. Reclamation Service; Camp 2, Sunnyside, Wash.
- H. H. VARNER.....Warrenton, Fauquier Co., Va.; Student, Medical Department, University of Virginia; Charlottesville, Va.
- T. J. WRIGHT.....Churchland, Norfolk Co., Va.; with Winston-Salem Southbound Railway Co., Office of Chief Engineer; Winston-Salem, N. C.

- W. J. LAMON.....Winston, Culpeper Co., Va.; Surveyman,
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Service; present address, Thistle, Utah.
- W. B. LIVESAY.....Fishersville, Augusta Co., Va.; Drafts-
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Roanoke, Va.; address, 511 8th Ave.,
S. W.
- L. P. MADDOX.....Naruna, Campbell Co., Va.; Assistant
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son Ave., Chicago, Ill.

COURSE OF MECHANICAL ENGINEERING

- C. M. BOWMAN....."05;" 1308 Church St., Lynchburg,
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Bowman, Chemical Engineer; present
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N. Y.
- S. E. CARNAHAN.....Hiawasse, Pulaski Co., Va.; Machinist,
Newport News Shipbuilding and Dry
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St., Newport News, Va.
- A. W. GRANT....."06;" U. S. Naval Academy, Annapolis,
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- L. LICHTENSTEIN.....8 S. 14th St., Richmond, Henrico Co.,
Va.; with L. Lichtenstein & Sons, 8
S. 14th St.; Richmond, Va.
- J. T. L. MAY.....303 N. New St., Staunton, Augusta Co.,
Va.; Erection Department, Westing-
house Machine Co.; permanent address,
Westinghouse Machine Co., East Pitts-
burg, Penn.
- C. L. PAUL.....1305 Bainbridge St., Manchester, Va.;
with Manchester Ice Works; Manches-
ter, Va.
- W. RUEGER, JR....."06;" 9th and Bank Sts., Richmond,
Henrico Co., Va.; with Philadelphia
Steam Heating Co., Philadelphia, Pa.;
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- W. D. SCOTT.....Riner, Montgomery Co., Va.; Research Fellow in Engineering, Experiment Station of University of Illinois; present address, Y. M. C. A. Building, Champaign, Ill.
- W. T. MONTAGUE....."Do;" 118 E. Franklin St., Richmond, Henrico Co., Va.; Motive Power Inspector, Pennsylvania Railroad; address, University Club, Altoona, Penn.
- H. C. WHITEHURST....."Do;" Richmond, Henrico Co., Va.; in charge of the New Southern Office, Richmond, Va., of Evans, Almerall & Co., Engineers and Contractors, New York City; address, 10th and Byrd Sts., Richmond, Va.
- L. W. WILLIAMS.....Berryville, Clark Co., Va.; 2d Lieutenant, U. S. Marine Service; address, 1613 S St., Washington, D. C.

COURSE OF ELECTRICAL ENGINEERING

- D. ALEXANDER.....321 Wythe St., Petersburg, Dinwiddie Co., Va.; with Stratton & Bragg Machinery Co., Petersburg, Va.; address, 321 Wythe St., Petersburg, Va.
- H. V. ANDERSON.....Pinta, Cumberland Co., Va.; in charge of Science Department, Jefferson Military College; Washington, Miss.
- I. H. ARMSTRONG.....Farmville, Prince Edward Co., Va.; Testing Department, General Electric Company, Schenectady, N. Y.; address, 7 Park Place.
- G. S. BARNARD.....251-255 Main St., Norfolk, Norfolk Co., Va.; member of the firm of W. H. Barnard & Co.; Norfolk, Va.
- W. P. BOATWRIGHT.....New Canton, Buckingham Co., Va.; 2d Lieutenant, Coast Artillery Corps, U. S. Army, Fort Hamilton, N. Y.; permanent address, care of Adjutant-General, U. S. Army, Washington, D. C.

- P. T. BRALLEY.....Crewe, Nottoway Co., Va.; Testing Department, General Electric Co., Lynn, Mass.; address, 256 Common St.
- G. E. BUSHNELL.....Salem, Roanoke Co., Va.; with the Sperry & Hutchison Co.; 34 West 33d St., New York, N. Y.
- A. B. CARPENTER.....203 N. Meadow St., Richmond, Henrico Co., Va.; address, 47 Green Ave., Brooklyn, N. Y.
- P. G. COSBY.....1111 Rivermont Ave., Lynchburg, Campbell Co., Va.; Salesman for Cosby Shoe Co., Lynchburg, Va.; care of Cosby Shoe Co., Lynchburg, Va.
- R. N. EARLY.....Hillsville, Carroll Co., Va.; A. C. Engineering Department, General Electric Co., Schenectady, N. Y.; address, 213 Seward Place.
- R. E. M. GOOLRICH.....Fredericksburg, Spottsylvania Co., Va.; 2d Lieutenant, U. S. Army.
- W. M. HANNAH.....272 Main St., Norfolk, Norfolk Co., Va.; Supply Department, General Electric Co.; address, Cincinnati, O.
- F. W. HARRIS.....Scottsville, Albemarle Co., Va.; Superintendent and General Manager, Con. Light and Power Co.; Ronceverte, W. Va.
- F. G. HENLEY.....417 Clay Ave., Norfolk, Norfolk Co., Va.; General Electric Co.; Schenectady, N. Y.
- C. D. MONTAGUE.....Fredericksburg, Spottsylvania Co., Va.; member of the firm of Harrison and Montague, Electrical and Contracting Engineers; Fredericksburg, Va.
- W. M. MORRIS....."06;" Trevilian, Louisa Co., Va.
- C. B. POWELL.....Fortress Monroe, Elizabeth City Co., Va.; Draftsman, Newport News Shipbuilding and Dry Dock Co.; present address, Hampton, Va.

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- J. SACHS.....Lynchburg, Campbell Co., Va.
- W. H. ULRICH.....1814 Ashland Ave., Baltimore, Md.
- B. B. WELLS.....Matoaca, Chesterfield Co., Va.; Foreman Electrical Work and Equipment, Virginia Passenger and Power Co.; address, 111 West Clay St., Richmond, Va.

MECHANICAL ENGINEERS

- | | |
|----------------------------|-------------------------|
| C. M. BOWMAN....."05." | F. M. LUCAS....."06." |
| G. H. CUNNINGHAM....."06." | W. T. MONTAGUE.. "06." |
| A. W. GRANT....."06." | W. RUEGER....."06." |
| C. LEE....."95." | H. C. WHITEHURST, "06." |

CIVIL ENGINEERS

- | | |
|------------------------|-------------------------|
| W. A. DUNN....."04." | H. A. TREADWELL.. "06." |
| C. D. SNEAD....."06." | A. D. WILLIAMS...."06." |
| H. H. WILSON....."06." | |

CLASS 1908—BACHELORS OF SCIENCE

COURSE OF AGRICULTURE

- S. P. COKER.....Society Hill, S. C.; Student, College of Agriculture, Cornell University; Ithaca, N. Y.
- F. W. JONES.....Gloucester, Gloucester Co., Va.; Student, Law Department, Richmond College; Richmond, Va.
- F. H. JORDAN.....Draper, Pulaski Co., Va.; Teaching, Dublin Institute; Dublin, Va.
- W. L. MALLORY.....Manchester, Chesterfield Co., Va.; Assistant in Animal Husbandry, Virginia Experiment Station; Blacksburg, Va.

COURSE OF HORTICULTURE

- J. C. C. PRICE.....Blacksburg, Montgomery Co., Va.; Assistant Horticulturist, Alabama Polytechnic Institute; Auburn, Ala.

COURSE OF APPLIED CHEMISTRY

- R. E. GLOVER.....Richmond, Henrico Co., Va.; Chemist,
Lackawanna Steel Co.; present address,
147 Sheffield Ave., Buffalo, N. Y.
- W. S. MARTIN.....Shenandoah, Page Co., Va.; formerly
Assistant, Department of Chemistry;
died at V. P. I., February 18th, 1909.
- R. MCBURNEY.....Alexandria, Alexandria Co., Va.; Chem-
ist, Thomas Chemical Co., Baltimore,
Md.; address, 222 West Franklin St.
- C. B. WALKER.....Danville, Pittsylvania Co., Va.; Assistant
in Chemistry and 3d Assistant Com-
mandant, V. P. I.; Blacksburg, Va.

COURSE OF GENERAL SCIENCE

- S. J. PRICE.....Lynchburg, Campbell Co., Va.; with Al-
abama Manufacturing Co.; Birmingham,
Ala.

COURSE OF CIVIL ENGINEERING

- J. A. ARMISTEAD.....Lennig, Halifax Co., Va.
- L. E. BROWN....."07;" Richmond, Henrico Co., Va.;
with J. Thompson Brown; Richmond,
Va.
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- L. F. SCHROEDER Richmond, Henrico Co., Va.; Switchboard Operator, New York, New Haven & Hartford Railroad; address, 17 Relay Place, Stamford, Conn.
- J. H. WILSON "07;" Danville, Pittsylvania Co., Va.; died in South Africa in April, 1909.

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T. O. DAY....."08." R. A. PAINE....."08."

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K. BLACK.....	Physician; died at Blacksburg, Va., August 14th, 1909.
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- E. A. WAINWRIGHT.....Vice-President, Real Estate, Trust and
Insurance Co.; Norfolk, Va.
- W. H. HARRIS.....Editor, *Evening Chronicle*; Charlotte,
N. C.
- G. H. JAMERSON.....Captain, U. S. Army; is now at the Army
War College; Washington, D. C.
- T. E. DASHIELL.....Portsmouth, Va.
- S. W. BURTON.....New York City, N. Y.

SUMMARY OF GRADUATES

COUNTIES			
Amelia	1	Nansemond	3
Alexandria	7	Nelson	12
Appomattox	7	Orange	9
Augusta	26	Page	1
Albemarle	22	Pulaski	15
Alleghany	9	Princess Anne	2
Accomac	4	Powhatan	5
Bedford	12	Pittsylvania	32
Botetourt	14	Prince Edward	11
Bland	4	Prince George	1
Bath	2	Roanoke	13
Buckingham	2	Rockbridge	9
Brunswick	1	Rockingham	9
Carroll	2	Rappahannock	6
Clark	7	Russell	1
Caroline	5	Shenandoah	2
Campbell	41	Southampton	7
Craig	1	Spottsylvania	7
Cumberland	6	Stafford	1
Charles City	1	Smyth	3
Chesterfield	13	Sussex	2
Culpeper	10	Tazewell	3
Charlotte	10	Washington	12
Dinwiddie	5	Westmoreland	4
Elizabeth City	5	Warwick	3
Essex	7	Wythe	27
Fluvanna	6	Wise	1
Fauquier	11	York	4
Fairfax	7		704
Franklin	2	STATES	
Frederick	5	Virginia	704
Floyd	1	Canada	1
Gloucester	3	Florida	1
Grayson	2	Indiana	1
Greene	1	Georgia	2
Giles	4	Maryland	9
Goochland	1	Mexico	1
Henry	5	Mississippi	2
Halifax	13	Massachusetts	1
Henrico	51	North Carolina	15
Hanover	5	New York	4
Isle of Wight	2	Ohio	1
James City	2	Pennsylvania	2
King William	3	South Carolina	19
King and Queen	2	Tennessee	5
King George	1	Texas	1
Louisa	2	Scotland	1
Lunenburg	6	West Virginia	3
Lee	2	Illinois	2
Loudon	13	Washington, D. C.	1
Lancaster	2	Argentina	1
Montgomery	65	Spain	1
Mathews	3	Louisiana	1
Madison	1		
Mecklenburg	5	Total Number of Graduates	779
Nottoway	6	Deceased Graduates	46
Norfolk	39		
Northampton	4	Living Graduates	733

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CAPT. MICAJAH WOODS

BULLETIN
OF THE
Virginia Polytechnic Institute
The State Agricultural and Mechanical College



Opening Number
October, 1910

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Virginia Polytechnic Institute

BULLETIN

Published Quarterly by the Virginia Polytechnic Institute

VOL. III

OCTOBER, 1910

NUMBER 4

SOME FACTS ABOUT THE OPENING

The most noteworthy facts characterizing the opening of the session of 1910-11 are the many changes that have occurred since last year. To be sure, the ten undergraduate courses of instruction remain essentially the same, though numerous minor alterations in them have been made, among the more important being the introduction of differential equations as a required subject in the junior year of the civil, electrical, and mechanical courses, and the substitution of electricity and magnetism for the mechanics of materials and the dynamics of machines in the senior year of the course in electrical engineering. The schedule of college lectures and laboratory work also continues substantially as before.

In the School of Agricultural Apprentices, however, the course of study has been materially modified; the amount of English and mathematics taught has been decidedly decreased, and more attention is paid to instruction in technical subjects. This course no longer prepares either incidentally or accidentally for the freshman class, but is purely and simply a one-year course for farmers.

The changes in the faculty, treated at length elsewhere in this BULLETIN, are too numerous to be more than mentioned here. The death of Professor Walker, the resignation of Professors Abbot, Worthington, and Allen, and the expiration of Professor Midyette's term of service, all greatly to be regretted, have necessitated the selection of many new teachers. Professor Arnold, besides his work in rhetoric, has charge of the apprentice English and is giving instruction in public

speaking. Professor Miles has returned from Germany and resumed his duties in the modern language department, while Mr. E. W. Lawson, also an old "V. P." man, has been elected associate professor of animal husbandry. Among the new instructors are Messrs. Smythey (modern languages), Robeson (mathematics), and McCown (rhetoric). Noteworthy changes in faculty rank are the promotions of Messrs. J. J. Davis and Harry Gudheim from instructorships to associate professorships. The retirement of Professor W. M. Brodie from military service in order to devote his attention solely to mathematics should also be mentioned in this connection.

Further changes affecting the faculty are to be found in the altered *personnel* of the following advisory committees recently appointed by President Barringer:

CATALOGUE AND BULLETIN—Professors Williams, Holden, Newman, Price, and Johnson.

LIBRARY—Professors Campbell, Barlow, and Reed.

DEGREE COURSES—Professors Smyth, Davidson, Randolph, Williams, and Barlow.

LITERARY SOCIETIES—Professors Newman, Vawter, Mayo, and Arnold.

SECONDARY SCHOOLS—Professors Drinkard, Williams, and Newman.

COLLEGE PUBLICATIONS—Professors Hudnall, Burkhart, and Rasche.

ATHLETICS—Professors Pritchard, McBryde, Miles, Brainerd, and Price.

PUBLIC EXERCISES—Professors Johnson, Drinkard, and Carrier.

DEFERRED AND CONDITIONAL EXAMINATIONS—Professors Randolph, Reed, and Vawter.

STUDENT SELF-HELP—Professors Parrott, Dashiell, Connor, and Rasche.

POSITIONS FOR GRADUATES—Professors Barlow, Davidson, Marr, and Price.

FARMERS' EXCURSIONS—Professors Price, Fletcher, Carrier, and Brainerd.

Among the numerous changes recently made about the college plant

those connected with the two academic buildings are perhaps the most striking. Not only are these two structures now heated by steam, but it is also possible to enter them from the rear by means of concrete steps and newly-cut doors, changes both of which are most welcome to students and professors alike. In the basement of the First Academic Building, too, a new laboratory has just been fitted up for the use of the department of experimental engineering. Other noteworthy improvements are the building of a new concrete reservoir in which is contained a large quantity of reserve water from the college spring, and the installation of shower baths in the basement of Barrack No. 2.

Athletic conditions are much the same as they were last year, except that Miles Field has been resown with grass, and is now covered with an excellent sod; the track, also, has been graded anew and a system of tile drains is at present being laid. The Athletic Association is fortunate in having been able to retain the services of Mr. Branch Bocock as athletic director for another year, as well as in having "Sally" Miles back as graduate manager and "Hoss" Hodgson as alumnus football coach.

In the method of matriculating students, few changes have been made. The records in the Registrar's office show that, up to October 10th, 455 men had matriculated, the detailed figures being as follows:

	Fresh.	Soph.	Jun.	Sen.	P. G.	Spec.	Total
Agriculture	31	18	8	8	1	6	72
Horticulture		3	2	3			8
Applied Chemistry	6	7	6	8			27
Metallurgy	1						1
Applied Geology					2		2
Prep. Vet. Medicine.....	2	1					3
Civil Engineering	28	21	12	18	2		81
Mechanical Engineering....	26	17	12	15	1		71
Electrical Engineering.....	58	31	28	23	2		142
Mining Engineering.....	3	3	4	6			16
General Science.....				1			1
Apprentices							31
Totals	155	101	72	82	8	6	455

In conclusion, it may fairly be said that conditions at the Virginia Polytechnic Institute were never more satisfactory, nor prospects brighter for a thoroughly successful session.

THE NEW MEMBERS OF THE BOARD

Captain Micajah Woods

Captain Micajah Woods is descended, on both sides of his family, from Scotch-Irish ancestry. He was born at "Holkhain," Albemarle County, Virginia, May 17th, 1844. He is connected with the Lewises, Stuarts, Prestons, Craigs, Rodeses, and other well-known Virginia families. His early education was obtained at the Lewisburg Academy, the military school of Charlottesville, and at the Bloomfield Academy. In 1861 he entered the University of Virginia, and it was not long before he was a member of the Confederate Army. In May, 1863, he was elected and commissioned First Lieutenant in Jackson's Battery of Horse Artillery, Army of Northern Virginia, in which capacity he served until the close of the war. He participated in the battles of Carnifax Ferry, Port Republic, Second Cold Harbor, New Market, Second Manassas, Sharpsburg, Winchester, Fisher's Hill, and Gettysburg.

After the war, Mr. Woods returned to the University of Virginia, where he studied law, being graduated therefrom in 1868 with the degree of Bachelor of Law. He at once began the practice of his profession in Charlottesville, Virginia, and in 1870 was elected Commonwealth's Attorney for that county, which position he has filled for nearly forty years without having had opposition for the nomination since 1873, and at the November, 1907, election he was chosen for said office for another term of four years, commencing January 1st, 1908. In 1872 he was made a member of the Board of Visitors of the University of Virginia, a position which he held for four years, having been at the time of his appointment the youngest member of that Board ever elected.

In politics Mr. Woods is a Democrat. He has been Chairman of the Democratic Party of Albemarle County for several years, and as elector represented the Seventh Congressional District of Virginia. He was permanent Chairman of the Virginia Democratic State Convention which met in Staunton in 1896 to elect delegates to the National Convention. In 1881 he was elected Captain of "The Monticello Guard" at Charlottesville, and commanded that famous old company at the Yorktown Celebration in October, 1881. In 1893 he was made Brigadier General of the Second Brigade of Virginia Confederate Veterans.



COL. A. M. BOWMAN

Captain Woods was engaged in prosecuting the case of Commonwealth vs. J. S. McCue for wife murder in Charlottesville, and the Strothers-Bywaters case in Culpeper County, Virginia. At the meeting of the Virginia State Bar Association at the Virginia Hot Springs in 1908, he was unanimously elected President of the Association and served for the term of 1908-1909. At the annual meeting in 1909 he addressed the Association on the theme, "The Necessity for General Culture in the Training of the Lawyer."

Captain Woods is a Mason, a member of the Mystic Shrine, and of the History Committee of the Grand Camp of Confederate Veterans of Virginia. Although many leading newspapers have mentioned him as a suitable candidate for Governor of the State, he has never allowed his name to be urged for the place.

Colonel A. M. Bowman

Colonel A. M. Bowman, whose parents were of German Lutheran descent, was born in Rockingham County, Virginia, January 11th, 1847. He attended the county schools and the New Market Academy. He afterwards served two years in the war between the states as private, was taken prisoner March, 1865, and was confined in Fort Delaware until June 1st, 1865.

From very early life he has loved the farm, and has given much of his time to stock raising, having exported to Europe and South America many improved cattle. For eleven years he was a member of the Executive Committee of the American Shorthorn Breeders Association, Vice President of the American Berkshire Association, first President of the American Saddle Horse Association, and is now a life member of the American Jersey Cattle Club.

Colonel Bowman has held many public positions of importance and responsibility. For twelve years he served on the Democratic State Committee; and for a number of years was Chairman of the Democratic Committee for Roanoke County. He served as a delegate to the Democratic National Convention at St. Louis in 1888. In 1901 he was sent to the House of Delegates from Roanoke County, and was appointed a member of the Finance Committee, the most important of the committees of the House. For six years he was Chairman of this Committee. In this Committee he secured the appropriation of \$50,000.00 for an exhibit of Virginia's products at the World's Fair in St. Louis;

also a great fund for the appropriation to celebrate the tercentenary of the settlement at Jamestown.

Colonel Bowman has served on various boards, both public and private; he has been a member of the Board of Trustees of Roanoke College, and Vice President of the Board of Trustees of the Southern Lutheran Orphan Home at Salem. He served, also, for four years on the Board of Directors of the Southwestern Hospital for the insane at Marion, and for the same period for the Central State Hospital at Petersburg.

He is now President of the Diamond Orchard Company near Salem, President of the Bank of Salem, and a member of the Virginia Tax Commission.

Colonel Bowman is a member of the Lutheran Church. He is a man of pleasing manners, fine business ability, and good judgment.

B. F. Kirkpatrick

Mr. Kirkpatrick was educated at Washington and Lee University. Here he took the Young prize scholarship in the Department of Psychology. He took a prominent part in athletics while he was a student at the University, playing on the football team and rowing on the winning crew in the annual boat race. He taught in New London Academy, in the Lynchburg High School, and for some time had a private school. For ten years he was Secretary and Treasurer of the Lynchburg Gas Light Company. He is sole proprietor of the Insurance Agency of Ivery & Kirkpatrick, is Vice President of the Strother Drug Company, wholesale druggists, Director of the First National Bank of Lynchburg, and Chairman of the Public School Board of that city.

ADDRESS FOR LAND GRANT COLLEGES

Delivered by President Paul Brandon Barringer, Virginia Polytechnic Institute, at the Semi-Centennial of Louisiana State University, Baton Rouge, Louisiana, January 3d, 1910.

Mr. President, Ladies and Gentlemen:

In rising to congratulate the officers and alumni of the University of Louisiana upon the completion of her fifty years of service to the State, the nation, and mankind, one's first impulse and temptation is to recall and recount the glories of her past, and enumerate the deeds of consecration and service which have made this day possible. But I am reminded of the fact that I stand here as the exponent of a peculiar cult—an educational guild which has but recently wrested its heritage of freedom from an alien guardianship; a guild whose pregnant present is the hope of this nation—the guild of agricultural and industrial training. As such I cannot deal alone in retrospect.

I am here, then, to congratulate this old institution, not so much upon her past—glorious as it has been—as upon the fact that at the beginning of this the greatest of centuries, she has in her curriculum a course of instruction, a line of thought, and a type of work, thoroughly in harmony with the present needs of her people. I come to felicitate her upon the illimitable opportunities which her future presents, seated on this mighty river, soon to be the highway of a nation, almost in sight of the sea, and within the borders of a State which may henceforth be called the Land of Opportunity.

If those that go out from this old institution in the next half century are moved by the same spirit of high endeavor which has marked her graduates in the past, there can be no limit to their hopes and aspirations, for never was opportunity greater. In the light of her past, I congratulate her upon her future, for now is the beginning of the time of times for the South. Here is the place of places for the development of those pioneer activities which must soon come to this section, and the industrial training which we have here is the type which alone can give Louisiana the fulfillment of her hopes.

In the development of improved processes for a purely southern staple—sugar cane—the University of Louisiana stands *facile princeps*

amongst her southern land-grant sisters. Trained in this art, as no others are, her young men are going as missionaries to all the tropical world—a slight forecast of a greater movement soon to come.

In rising to congratulate her upon her attainments in a highly technical agricultural art, I will take as the burden of my brief discourse to-day the unusual opportunities which her peculiar situation affords, the urgent call of the nation to such industrial service, its truly patriotic aspect, and the great blessings to mankind which may arise.

Louisiana, a State begotten by the mingling of conquering bloods; born as the seal of amity between two races; molded by the spirit of the Roman as well as the Saxon law, no land or state could be better fitted to act as *concierge* to the open door of commercial intercourse with the Latin-American states to the south, and this is to be her work for the nation.

The decade now ending is the first of a century which will stand preëminent in the records of mankind. It will see the first real application of the vast fund of technical knowledge which the previous century gathered. It will see demonstration as well as experiment—application as well as thought. This century will see the waste places of America built up, and a teeming population fill the land, and for the first time in man's history we shall see his westward drift halted, and the tide of migration turned at right angles to its course—for when the East and West are met, southward "the star of empire" will take its way. These are to be the years of recompense when man, ages ago driven from the tropics by his ignorance of nature's laws, will return full armed to take and administer forever his fruitful primitive heritage. It is full time, for the question of food is already the great problem of the race.

With hunger behind, man braves the elements, the sword and pestilence—it is the one resistless impulse. When, therefore, from some hunger point in the far East, with the Pacific behind, man moved landward and westward, held to his course by the frost line above and the fever line below, America was conceived and the great migration had its beginning.

In his terror of "the pestilence that walketh by noonday," man has hitherto moved most freely when close to the frost line, but these days are done. With hunger facing hunger across the Pacific, a wider zone is needed to supply his food, and expansion will come where the wall is weakest—and where is that? He will drive back the fever line.

The work of Leveran, Ross, Grassi, and others on the cause of

malaria, and the work of Carter, Reed, and Gorgas on yellow fever have made this possible. This new power over tropical disease and the ever-rising price of food, must soon bring to the fertile, long-seasoned lands of the South a population hitherto undreamed. All along the line we see the movement; Germany in Asia Minor, with the Euphrates Valley Railway; England in Egypt and on the Nile; France in Algeria and the north coast; while in America the drift is also to the south.

Here, looking northward, we see to-day a great continent now well filled—a hive of industry—rich and strong, but restless under the high price of living and the filling of the land. To the south lies a vast coastal plain, having a soil warm and productive, with a growing season nearly twice that of the North, but, aside from one or two staples, largely uncultivated and burdened with a system of agriculture utterly at variance with the demands of the day. Into this fertile land a rising tide of humanity must flow till the flood tide is reached, and then must come an overflow—and where? The old move with a new direction—to the south, across the fever line, to the only lands left—the lands of the sun. And when this flood of humanity begins to pour out through the Mississippi into the tropics, ebbing and flowing, coming and going between these shores and the lands of the Gulf and the Carribean Sea and the linking Panama Canal, then, friends of Louisiana, where will be your past? It will be as an acorn to an oak, a small thing, indeed. But we must remember that the type of the acorn prescribes the size, the strength, and the perfection of the tree.

The training of a people in both agriculture and the mechanic arts is necessary to a proper balance between production and transportation, the latter giving a stable, because a wide, market for all produced. Many lands are rich, but useless because inaccessible; many have easy transportation, but are either so poor or so cold that even easy transportation for manures and produce will not make them profitable. Here Louisiana stands supreme; a rich soil, on the sea, close to the tropics, with natural and artificial routes of trade, she can not only produce but can always find a market, north, south, east, and west.

Louisiana, even without the main channel of the Mississippi, leads every state in the Union in its inland navigable waters. The day will come when these will be her greatest asset. As an evidence of coming interest and effort, we see the creation of a Deeper Waterways Commission to harmonize and render uniform our whole national system. What this means to Louisiana may be better understood when we say that it

will put two thousand miles of navigable water in communication with all the rest of the Mississippi Valley system, aggregating nearly twenty thousand miles.

The creation of this commission and the enthusiastic energy of the Inland Waterways Commission are but evidences of the fact that American railroads are already unable to handle the full loads of seasonal traffic. The railroads themselves must soon see that it is better, wherever possible, to transfer to water transportation the heavy non-perishable utilities, and to develop and reserve the fast freight and passenger traffic. Again, Louisiana must profit by the fact that when the West is thoroughly developed, the east and west lines of transportation will not stand preëminent as in the past. For years these roads have profited by an artificial traffic between a manufacturing East and a frontier West, but when this country is uniformly developed, the great trade routes will be north and south.

The seasonal traffic of a large continent of varied topography, covering nearly twenty degrees of latitude, is hard to conceive. From a region representing almost seventy per cent. of the area of this continent, the waters flow by gravity to Louisiana, and for the same reason the railroads of this same area will sooner or later seek the sea at the same point; for if there is one maxim that covers the entire philosophy of trunk line construction, it is found in the words "*straight* for the sea on the easiest grade." Standing at the center and hub of rail and water transportation for the Mississippi basin, and hard by the sea, what an opportunity is presented for your graduates in the mechanic arts!

Nor are the opportunities of young men at the University of Louisiana to be limited to the development of land transportation alone. In America, ship building is now also showing a drift southward. The Newport News ship-building yards in Virginia, under conditions otherwise markedly adverse, are able to meet all competition by reason of their having so many more days in the year that are suitable for out-of-door work. When the advantages of the lower Mississippi, with its warm climate, fair skies, cheap freight rates for water-borne steel and coal, and its varied opportunities for cheap living, are clearly understood, this industry will locate here. Could the legislature of Louisiana, in proper time, see their way clear to supply the funds for a School of Marine Engineering in this institution, it would do much to prepare and pave the way for this industry.

In a state, moreover, where there are still thousands of acres of

submerged lands, which may be profitably reclaimed from sea and flood, what an opportunity for your drainage and agricultural engineers! On this breezy coast, what an opportunity for the development of a system of "short-lift" irrigation and drainage, by means of air-driven machines and windmills! The fever-infected swamp lands of Louisiana and other states can be made as healthful as the Netherland coast near Haarlem, and even more attractive.

Moreover, when men come in numbers to populate this fertile land—drained, healthful, and safe—a new agriculture will come to bless it. The long reign of the European cereals will be broken, and rice will rise as a competitor, together with the pea and bean. But the keynote of our coming agriculture is to be found in the development of a forage-crop industry, fitted to our peculiar seasons and soils.

The feeding to animals of corn, corn meal, bran, etc., the ordinary so-called "concentrates," is now approaching the stage of doubtful return, and will soon be practically impossible. When man needs a food himself, it fares ill with his cattle, and the day is fast coming when our American meat must come chiefly from forage-fed cattle, sheep, and swine. This is certain, for other things, such as plant-food and water, being equal, forage is best grown where the sun shines the longest and the hottest; that is, here in the South.

This means the development of a serial rotation of forage crops adapted to each locality—a thing now unknown to our people. What need of the South is more imperative, and who can meet this need so well as the graduates of this and other Southern schools of this type?

The problem is not easy. To adjust for each locality a series of duly succeeding, properly balanced forage crop rations for any great number of animals, without waste or loss, is, indeed, a man's problem; to teach such a system to a people is our own great sectional problem; but its success or failure in the end is a national problem.

But the raising of meat in the South is by no means the only outlet for this coming system of Southern agriculture. Forage crops converted into silage and placed in properly sealed tanks or silos for shipment, will keep almost indefinitely, and will bear the slowest of transportation. It is no flight of fancy to imagine silage-laden barges breasting the Mississippi and penetrating to every dairy district in its wide drainage area, nor is it less likely that barges will bring in return the plant-food necessary for trucking and other intensive forms of agriculture. Stable manure by thousands of tons is now shipped from New York to the trucking

districts of Virginia, and, surely, if this can be done by rail, one can afford to ship by water.

There is another highly technical service to which the horticultural students of this University can turn with profit to their state. I refer to the development by Mendelian methods of a hardier class of semi-tropical fruits, such as the citranges and other citrous fruits, even perhaps the mangos and avocados. I believe the creations produced here would have a wider range than those from either Florida, Texas, or Arizona.

And so I might go on and enumerate the opportunities of your technical men in this favored land. The question is, shall we have the men—the land-grant men—for this crusade of development? Let us see.

No change in any literature has ever been more sudden than that which marked the entrance of agricultural topics in our higher magazines and journals. In the last five years such literature has risen from nothing to an important place, and yet, an analysis of the output and its results shows a singular fact. It shows that in America our reason and our apprehension are awake to the call of agriculture, but the imagination is still untouched. It is the philosopher, the publicist, and the business man who are interested in this new literature, and not the youth of the land. As yet they respond but slowly, hundreds where we should have thousands, for the momentum of centuries cannot be halted by one or two jeremiads of woe. They started astray long ago.

At some time in the earliest days of life, when hunger pressed and the land would not support both, two brothers parted. One went to seek new and better lands, while the other was content to remain and build up the soil on which he lived. On that day men became divided into two great classes—the movers and the improvers. The original improver is represented to-day by the patient, toiling, peaceful East—a type in which saving is a virtue and prodigality a crime. The Oriental on his own soil will win out against all others, because he can underlive them. He is the incarnation of thrift.

But the mover was of a different type, and the more he moved, the more the difference grew. Originally more aggressive, he became soon a wanderer, a warrior, a land-grabber—the one to be feared. Seizing the best lands, he simply exploited them and passed on; a wasteful prodigal, strong, valiant, and contemptuous of his brother's type, he held the mastery of the world. He led the march in the great westward migration, and we, the early settlers of America, came of his loins. Is it any wonder that our young men scoff at the heresy of conservatism and turn

a deaf ear to the cry for peace? For ages their ideals have been martial, and all others have held a minor place. One glance at our Statuary Hall in the federal capitol will prove this, or an examination of our national budget where sixty per cent. of our total revenue stands charged against wars, past, present, and future. Only in recent days has the industrial cult risen to a place of honor and power. The captain of industry is a very recent thing.

But this is changing; we have caught from the East the spirit of thrift, and from us they have caught the spirit of war. Even before they met, these long-parted brothers began to mingle ideas. The improver of the East developed as a simple empiric, and while a marvel of petty agronomic skill, he knew nothing of conservation or its philosophy, and he ruined states while he improved acres. Until very recent years he knew nothing of the power of national organization, as he knew little of war—the one art that begets organization in a people.

But now that we in America are forced by growth of population and a coming shortage of food to conserve our resources and improve our methods, we must have no narrow empiricism here, but a rational nation-wide effort at improvement, applying alike to agriculture, forestry, mining, and transportation—a great national effort at self-preservation under expert advice. For this service the land-grant men of our colleges are being trained and qualified.

To the long experience of our European ancestors in the art of war, with its technical training in mechanical detail and its power for organization, we are all indebted. It is the secret of present German success. When this nation, in 1862, with prophetic insight determined to provide by specific technical education this class of trained improvers and conservators, it wisely made part of their training military. It was a good move, as it bound the warfare of the past to the warfare of the future and gave a real nexus—patriotism.

You will never awaken the youths of this land, even the land-grant college men, to a proper appreciation of their obligations to industrial service till you put it on its true ground of patriotism and give the old racial war cry, the call to rescue, the call to industrial effort as a part of national defense. Give the land-grant cadets the West Point and the Naval Academy spirit—it can be done. Put before the land-grant students of the University of Louisiana, who go out from these historic halls, which have often rung to the tread of martial men, the sacred truth that it is theirs to take up the burdens of these soldiers of the past just

where they fell. These old soldiers were the nation builders of their day, but not one whit more so than these young men—these young soldiers of industry. If one opened the wilderness to settlement, the other is now transforming it for production; where one broke the pathway, the other now breaks the sod, and each meets the needs of his nation. To-day the industrial standing of a people is the real measure of its war strength, for without finances, food, and arms, patriotism is of no avail. The agricultural industrialist is really the only "regular" of the day. There is not the glamour, nor the pomp nor pageantry of martial array, but there is equal consecration and equal service.

But problems of industry, profit, and wealth are not the only ones to be solved by those trained to industrial service. Ethical problems are to be theirs as well. Industrial warfare, as we now know it, is absolutely merciless and cruel. It is circumscribed by no codes or usages, and is beyond the law of nations and the decalogue. It reaches beyond the market place to the home and the fireside, and strikes not men alone, but helpless women and children. To these soldiers of industry will fall the task of limiting and softening these evils, of solving the greatest problem of the world's future—the problem of industrial peace. The call of humanity to-day is for men who have thought on the duties of service, not alone for community, state, or nation, but the broader service of mankind. The call is for men trained to think in units of national magnitude, fitted to order and distribute the industries of the world, and with hearts so full of love for mankind that their power shall encompass the earth and bring peace and prosperity to all the world.

LIFE IN THE SOIL

BY PROFESSOR HOWARD S. REED

It is coming to be pretty generally understood by all thinking men that the future welfare of the race is indissolubly bound up with the productiveness of the soil. For the past ten years the prices of the necessities of life have continually increased, owing to the increase of total and per capita consumption of commodities in this country. The recent utterances of men like Mr. J. J. Hill have been a clarion note to arouse the interest of the producer and consumer in the absolute dependence of the nation upon the ability of its soil to produce, not average, but maximum yields from year to year. This is entirely possible, because we have in our soils our one great indestructible national asset. For my part, I have no patience with those misguided croakers who continually lament that our soils are slowly but surely being depleted of their stores of plant-food constituents, and who solemnly assure us that in the limits of the present century our vast domain will be fruitless and the soil will be "a burned-out cinder."

Portions of our good old State of Virginia have been cultivated for upwards of three hundred years and, where not abused, the soil is producing better crops to-day than ever before and compares favorably with the newer lands of the Mississippi Valley. For the ten years, 1899-1909, the average yield of corn per acre was the same in Virginia as in Kansas. Not only do I believe that these yields can be maintained for centuries, but that they will be materially increased the country over.

Soils are now being studied as other realms of nature are studied. Up to the present time our knowledge of the plant far outweighs our knowledge of the soil, because only within a short time has the soil problem come to be thought of as essentially dynamic. Until recently the assumption has been made, more or less explicitly, that the soil of a field remains fixed indefinitely. It has been assumed that the only important change taking place in the soil is a loss of mineral plant nutrients, partly by the leaching action of water and partly by the removal of garnered crops. In other words, the soil has been regarded as a static,

lifeless system. This is a fundamental error. We now know that there are extensive living agencies at work in the soil by means of which deep-seated and fundamental changes are brought about.

Why this late development of soil science? More largely, I believe, to the work and writings of Baron von Liebig than to any other cause, is this arrested development due. Great as were the contributions of Liebig to many branches of chemistry, he undoubtedly headed off work which would have revealed the truth years ago. During his lifetime, men like De Candolle and Pasteur were working to extend a knowledge of the action of living organisms in nature. Liebig's predilection was for chemistry, and he could see nothing in the world but chemistry. Unfortunately, the fame derived from his real discoveries floated many an unseaworthy theory of the same master mind. This was, no doubt, largely aided by an acrimonious style of writing which often characterizes our Teutonic cousins. Such was the case in regard to his theory of mineral requirements of plants, which held that the fertility of a soil depended on the presence of certain mineral substances which are invariably found in the ashes of plants. Although the experience of the farmer has not confirmed the chemical analysis of the soil, this view of Liebig's has prevailed nearly to the present day.

With the dawn of the idea that there is life in the soil, a new phase of study was immediately opened, and, although it is yet in its infancy, many important results have been attained. On the side of the plant, it has been shown how great an influence may be exerted by the growing root itself. The researches conducted by the Bureau of Soils laboratories of the United States Department of Agriculture have shown that the plant roots frequently leave noxious excretions in the soil which, while injurious to plants of that species, are harmless or even beneficial to the roots of another species. This fact in itself throws needed light on the necessity for rotation of crops, since soils may become unproductive, not for lack of any essential ingredients, but because the previous excretions render them unsanitary for the continued growth of that crop. Researches conducted in the same laboratories have also shown that in certain soils toxic compounds may arise from the disintegration of plant remains under improper conditions of aeration or water supply, but where proper conditions exist, the plant remains and manures disintegrate to form the beneficial classes of humus bodies.

My purpose in this paper is, however, to present some facts recently brought forth upon the extent and relations of microbial life in the soil.

Of all the varied activities of bacteria in nature, none compares in importance with the work of the soil bacteria. They not only determine the fertility of the soil, but they serve as the connecting link between the world of the living and the world of the dead. They are the great scavenging agents which tear down the dead bodies of animals and plants, and restore the carbon, nitrogen, sulphur, and other elements of the tissues to the round of nature. The processes of nature are such that the same material is repeatedly used, passing in endless cycle from plant to plant or from plant to animal and back again to plant, but always with the intervention of bacteria. Without their action, dead bodies would accumulate and cover the surface of the earth; the kingdom of the living would be replaced by the kingdom of the dead, and the world's supply of carbon and nitrogen would be locked up in a form useless to most forms of life.

A square yard of soil may support several thousand moss plants or blades of grass, and in addition, contain enough seed to produce several more thousands. The number of these plants in the soil is, however, almost infinitesimal in proportion to the number of bacteria which it may support. A poor soil may contain a mere bagatelle of some three hundred thousand bacteria per ounce, while a good soil will contain at least thirty million per ounce. A soil to which stable manure has recently been added may contain from five hundred million to two billion bacteria per ounce.

These comparatively enormous numbers of organisms in the soil are far from idle. They must have food, and at times must have it abundantly. To get this food material, they lay hold upon various constituents of the soil. How rapidly and successfully they are able to lay hold upon organic matter may be shown by the rapidity with which a piece of animal or vegetable matter disappears when buried in the soil.

The actual number of bacteria in the soil is not a matter of especially great importance. Most of the bacteria are confined to the surface layers of the soil; i. e., to that portion which is tilled by the farmer. At a depth of three or four feet the number of bacteria is small, and at six feet they are mostly absent.

We owe to many minds the investigations which culminated in the discoveries of Hellriegel and Wilfarth of the nitrogen-gathering bacteria associated with leguminous plants. The facts which they brought to light have shown the farmers how to maintain the supply of valuable nitrogen in cultivated soils. Innumerable large and small lights have

been kindled from their original flame of scientific discovery, and now from savant to sophomore, every one knows the story of nitrogen fixation, the process by which different races of bacteria transform the inactive nitrogen of the air into the nitrates and ammonia compounds so essential to the growth of those plants which serve as food to animal life. Considering the importance of this process to the human race, it is almost impossible to dwell too strongly upon the importance of this process of nitrogen fixation. Without it, life as at present organized could not exist upon the earth to-day.

Certain varieties of these bacteria find a habitation in the roots of leguminous plants, and produce thereon swollen nodules. While their host plant lives, the bacteria use atmospheric nitrogen to build up a store of nitrogenous compounds, part of which go to nourish the host plant during its life, while much is added to the soil upon its death and decay. Thus through the benign activities of these bacteria, soil wealth is created from an inert, worthless gas in the atmosphere.

The miller's unfortunate daughter, in the old fairy tale, was allotted the task of spinning straw into gold, and we are told that the preposterous task was finally accomplished by the intervention of a dwarf, who had the supernatural ability to set things right, as all good fairies should. In these days we have learned that the myriads of bacteria in the soil are able to accomplish results which seem almost as preposterous as that of spinning gold from straw. To obtain fertility from the atmosphere is one of the fairy tales of science which has recently been made to come true. For a long time it has been known that the atmosphere contains a vast store of nitrogen in the gaseous form, and it has been the ambition of scientific men to utilize this nitrogen in adding fertility to soil.

When the rock layers disintegrate to form soil, they ordinarily produce a soil which contains all of the ordinary elements required for plant food except compounds of nitrogen, for of this latter class the rocks contain none. Yet when productive soils are analyzed—for example, the so-called virgin soils—they are found to contain large quantities of nitrogenous material, as much as five thousand to ten thousand pounds per acre, to a depth of one foot. Chemists are unanimously agreed that all of this nitrogen has been derived in some way from the large store of gaseous nitrogen in the air, and that the major part of it has been accumulated through bacterial action.

To many ears the announcement of this discovery was fully as pre-

posterous as the old idea of spinning straw into gold, but modern science has brought about the realization of a process which is more valuable to mankind than the work of old Rumpelstilzchen in the fairy tale. The bacteria which are responsible for this process take the atmospheric nitrogen and combine it with oxygen through various stages until it comes into a condition where it can be utilized by growing crops.

Another interesting fact is that this process appears to go on most abundantly in soil where there is the greatest need for nitrogenous material. In soil that already contains appreciable amounts of nitrogenous material the bacteria become lazy and cease to lay hold upon the atmospheric nitrogen, but in nitrogen-poor soils they are compelled to make use of atmospheric nitrogen in lieu of that which might be obtained from the soil of a rich field. As an instance of the amount of nitrogen which these bacteria are able to accumulate, a single example may be cited. A field belonging to the Rothampstead Experiment Station in England was abandoned for twenty-two years, producing nothing but wild vegetation during that time. At the end of the twenty-two years, it was found that the soil was richer in nitrogen by an amount equal to one hundred and thirty-two pounds of nitrate of soda per acre, in addition to the large amounts which had been consumed by the wild vegetation during the time of the experiment.

Thus it was learned that the supply of combined nitrogen to the plant world is maintained through the activities of bacteria. The bacteria which accomplish this result differ from all other classes of bacteria in that they accomplish an addition of nitrogen compounds to the resources of the plant and animal world, and are known, therefore, as nitrogen-fixing or nitrogen-gathering bacteria. The nitrogen-fixing bacteria may be divided broadly into two classes: those which work alone and those which form partnerships. The former live in the soil itself and develop there even when no crop is grown upon it. The latter also grow in a bare soil, but acquire a pronounced power of gathering atmospheric nitrogen only after they have invaded the roots of certain leguminous plants, and have attained a certain development there.

Another important function in fertile soils is performed by those bacteria which act upon the humus bodies. In a good fertile soil the organic material is in a form called humus. It is a substance which is universally present in good soils, and scarce, if present at all, in poor soils. It represents a fairly permanent form into which the decayed plant and animal tissues have passed. The presence of humus in the

soil gives it that rich, warm, brown color which the farmer recognizes as characteristic of fertile soils.

Under the best conditions, when the soil moisture is neither excessive nor deficient, the soils allow the decay of the humus, but the rate of decay is quite slow. On a properly cultivated clay, or clay loam, the effects of barnyard manure or of green manure may usually be noted several years after the effects of similar applications have altogether vanished from sandy soils. For this reason, soils consisting largely of clay or clay loam are commonly known as "strong" soils. In case such soils are too compact to permit the most profitable amount of humus decomposition, their texture is usually improved by cultural methods which result in increasing the growth of the proper bacteria; for example, by under-drainage or by applying lime.

While humus is extremely important both as a chemical and as a physical agent in promoting soil improvement, its usefulness does not end there. Humus contains different elements, one of which is very essential for plant growth; namely, nitrogen. This humus-nitrogen is derived from the organic nitrogenous compounds of the plant and animal matter added to the soil as manures. One class of bacteria has labored to convert the plant tissues into humus, subsequently another class of bacteria lays hold on the humus and brings about a destruction of the humus with liberation of the nitrogenous compounds.

The first step, and perhaps the most beneficial one accomplished by bacteria, is the formation of ammonia from the nitrogen compounds in the soil humus. The bacteria which accomplish this may be said to comprise the association of the ammonifiers. They serve as a splendid illustration of specialization in the work of the soil bacteria. In the course of countless centuries there has been established this division of labor, which requires the adaptation of certain bacteria to one special kind of labor, forming, as it were, a well-defined labor union, with very well-defined rules as to raw material and finished product. This microbial labor union differs, however, from the imperfect organizations among mankind in having no rules restricting the amount of labor to be done by the individual or by the union. Wherever there is soil humus the ammonifiers' union begins to work, and no one of the myriads of members ceases until the last molecule is transformed into ammonia. While this process is going on, another union, which we may call the nitrite producers' has been transforming the ammonia produced by the ammonifiers into nitrites, and finally a third union takes up the nitrites and

transforms them into nitrates. These last two classes of bacteria work in wonderful unison and harmony, and transform the nitrites into nitrates almost as fast as they are formed. The sum total of the activities of the three associations of bacteria results, therefore, in forming the humus nitrogen in the soil.

The most recent extension of our knowledge of the life within the soil has just been given out by two English scientists, who have shown that a group of animalcules may devour large numbers of the useful bacteria to such a degree as to lower seriously the ammonifying power of that soil. These men, Russell and Hutchinson, found large numbers of the lowly organized protozoa and amœbæ in soils and found experimentally that they are antagonistic to the development of soil bacteria. These animalcules, which represent the simplest forms of animal life, have long been known and studied by biologists. Many of us can recall the strain on eye and patience in the days of our elementary zoölogy as we tried to see the amœba extrude his pseudopodia, or to follow an especially agile paramœcium which darted across the field of vision and took refuge in the loop of an alga filament.

Russell and Hutchinson found that soils were only partially sterilized (in the bacteriological sense) by treatment with heat or antiseptics like carbon bisulphide or toluene, though it caused at the outset great reduction in the numbers of bacteria present. This reduction was only temporary, for as soon as the soil was watered and left to itself the bacteria increased to a degree that is never attained under normal conditions. According to Director Hall, of the Rothamstead Experiment Station, "One of the Rothamstead soils employed contains normally about seven million bacteria per gram—a number which remains comparatively constant under ordinary conditions. Heating reduced the numbers to four hundred per gram, but four days later they had risen to six million, after which they increased to over forty million." Simultaneously with this subsequent increase in bacteria there was a great increase in the ammonia content of the treated soils—an increase believed to be due to the increase in numbers of the ammonifying bacteria. The partial sterilization kills off the protozoa and amœbæ, but leaves unhurt some spores of the ammonifying bacteria, which afterwards can develop to a much greater extent than in the untreated soil, because they are freed from this natural check.

"According to this theory, the fertility of a soil containing a given store of nitrogen compounds is limited by the rate at which these nitrogen

compounds can be converted into ammonia, which, in its turn, depends upon the number of bacteria present effecting the change, and these numbers are kept down by the larger organisms preying upon the bacteria."

One of the larger predatory soil organisms is an amoeba, one of the simplest forms of animal life with which we are acquainted. These amoebæ, living an independent existence in the soil, are strikingly similar to the white corpuscles of the blood, which, according to Professor Metchnikoff, actively devour bacteria which invade the blood stream and thus protect us from many bacterial diseases. Thus it may be seen that the amoebæ in the blood are beneficial by devouring noxious germs which enter, while the amoebæ of the soil are, or may become, noxious by devouring the useful ammonifying bacteria.

The theory as it now stands assumes that the nitrogenous food supply of the plant depends upon the number and activity of ammonia-forming bacteria, and that the number of these organisms depends upon the presence of the protozoans which consume them as food.

The entire question belongs as yet to the realm of theory rather than of fact, yet we are assured that the truth of the various assumptions is being rigidly investigated. It will probably be found that certain phases of it will be extended, while others will require retrenchment. The growing plant exerts an influence upon the soil which has been shown to modify markedly its crop-producing powers. Nevertheless, the theory advanced by Russell and Hutchinson throws light on many previously obscure questions. It may help to explain some of the beneficial effects derived from summer fallowing. The exposure of the soil to strong light and heat of the sun must undoubtedly kill numbers of the soil protozoa, and allow a correspondingly freer field for the activity of ammonifying bacteria. Also, most persons are familiar with the increased productivity of the soil in places where fires have burned, a fact which we see frequently taken advantage of when our farmers wish to prepare a seed bed in which to raise young tobacco or tomato plants. Indeed, it was the practice of the Romans to burn vegetable rubbish mixed as much as possible with the surface soil before sowing their crops. In some parts of India it is the custom to expose the soil to the intense heat and light incident to the weather in April and May, with a view to increasing its productiveness. Probably the reduction in numbers of protozoa is a factor in promoting the desired result. For many years European vineyardists have applied carbon bisulphide to the soil to kill the dreaded insect causing phylloxera. They have noticed material increases in fer-

tility following these applications, but the explanation was not found until Russell and Hutchinson showed the power of this compound to destroy noxious soil protozoa.

If such facts as these briefly cited bring about increased productiveness as a result of the destruction of noxious soil protozoa, it seems more than probable that there is practical utility in the discovery of Russell and Hutchinson. Whether it shall prove to be entirely true or not, it will stimulate a vast amount of research along new lines and bring us on our way toward the goal of truth.

ENGINEERING AS A PROFESSION

BY PROFESSOR L. S. RANDOLPH

Engineering is essentially industrial in character. Its end is to accomplish, to obtain results.

In the South the industrial development has been too recent for a general understanding to exist of the duties and responsibilities of the engineer; particularly is this noticeable in the selection by the rising generation of the profession of engineering. Not only the young man, but the parents and friends as well, show a lamentable want of knowledge as to what engineering really is and what mental and physical attributes are essential to success.

Engineering was defined long ago as "The art of applying the discoveries of the scientist to the needs of mankind." For years this definition was sufficiently concise. The world was satisfied to call him an engineer who could build a bridge which would not fall down, a locomotive which would run, or a machine which would work. To-day the bridge must not only stand, but its first cost and cost of operation must be a minimum; the locomotive must run with the minimum of expense; the machine must do its work with the minimum of cost per unit of output. The modern definition of an engineer is "One who will do with one dollar what any fool can do with two." As money is but the mechanism of exchange, this means to do with one hour of labor what the ordinary man would do with two hours.

The work of the engineer is both scientific and industrial, and those branches of science which are used, one might say almost exclusively, are physics, chemistry, and mathematics; the latter being not only a means of applying and interpreting the former, but an excellent mental training as well.

Physics and chemistry may be said to be the foundation stones of engineering, and the man who cannot readily grasp these will seldom, if ever, do as well in engineering as he would in some other line of activity. Engineering requires logical reasoning powers rather than memory; a visual memory or imagination which can construct forms and figures

in space and hold them there is almost an absolute necessity. It is exceedingly rare that one will be successful in engineering who is good in languages but poor in mathematics, particularly geometry.

The enormous industrial development in the world at large, and particularly in the United States, has called for great numbers of young men in the engineering profession. The development has been along such varied and complex lines, and the discoveries of the scientist have been so astounding both in number and character, that the problem is by no means simple, and to the young man who seriously considers the subject and makes even elementary investigations, it can hardly be otherwise than appalling. The time has long since passed when a man could be an engineer; he must specialize. No one mind can retain a working knowledge of more than a few of the branches of engineering.

The problem of selecting the profession of engineering varies in no wise as a general proposition from that connected with any other line of occupation. Longfellow says,

*"And most of all, note well
Wherein kind nature meant you to excel."*

He will attain the greatest possible success who follows most accurately that line of advice, always taking into account the exigencies of environment. One can excel only along those lines of activity which are available.

The first question to arise will naturally be—What branch of engineering is best to follow?

The divisions of engineering universally recognized are, in the order of their development: civil, mechanical, mining, marine, and electrical. The following, while not so universally recognized, are of growing importance: hydraulic, railway, industrial, power, sanitary, chemical, metallurgical, and gas.

From a purely theoretical standpoint, engineering may be divided along the lines of the methods to be applied, as electrical, hydraulic, or gas; or along the lines of work to be accomplished, as mining or railway. As a matter of fact, the specialization has been along both lines as the demand arose, with a tendency to greater specialization along the lines of the work to be accomplished.

Civil engineering, sometimes called statical engineering, to indicate that it has to do with stationary structures only, is an offshoot of military engineering, and from it have sprung all of the other branches of engi-

neering now recognized. With the advance of civilization the demand for civil engineers becomes greater and greater. The civil engineer may be called the pioneer of civilization. It is he who first maps the country, surveys the land, lays out the roads and railways, and builds the bridges and canals. The life is attractive and the compensation remunerative, the only drawback being that in times of panic and financial depression the civil engineer feels it first and most severely.

The work of the civil engineer can probably be best described by a discussion of the various subdivisions into which the profession has been divided. These are as follows:

I. Hydraulic engineering includes the entire range of the control of water (except the design, construction, and installation of water wheels), the construction of docks, piers, levies, dams, canals, and all works for the control of rivers and harbors, water works, sewage systems, water filtration, and sewage disposal works. The drainage of swamp lands and the irrigation of dry lands are all the peculiar province of the civil engineer who specializes in hydraulic engineering.

II. Sanitary engineering. The sanitary engineer is one who handles questions of water supply and sewage systems with the added subjects of ventilation and the spread of epidemics of water-borne and air-borne diseases.

III. Railway engineering includes all of the physical part of a railway, both steam and street, except the locomotive, cars, and shops; namely, the location and construction of the railroad, its bridges, tunnels, yards, stations, water supply, coal bins, station buildings, warehouses, loading pens, signal systems, and the maintenance of these.

IV. Highway engineering includes the location of highways with their bridges, surfacing, drainage, etc., the grading and paving of city streets, and, in fact, everything in connection with roads for the traffic carried in vehicles.

V. Municipal engineering covers the problems which arise in the administration of a city. It is a combination of bridge, or architectural engineering, sanitary engineering, and highway engineering. The demand for such engineers promises to be large, as it is an out-of-date city or town which does not have its city engineer.

VI. Architectural engineering is coming into vogue with the building of skyscrapers which require as much skill in designing as the large bridges.

Mechanical engineering, sometimes called dynamic engineering, since it has to do with the applications of power and motion, was the first offshoot from civil engineering. As in the case of civil engineering, its scope is exceedingly broad, including all classes of moving structures or machines. The mechanical engineer, like the civil engineer, must be thoroughly familiar with the field covered by his profession in order to properly solve the problems which arise. The design, construction, and management of machines, to which power is applied, is the peculiar province of the mechanical engineer. Power is developed from fuel (coal, oil, etc.), falling water, and the wind. It is transmitted by water and air under pressure, gas, electricity, steam, moving shafts, ropes, belts, and wheels; with all of these the mechanical engineer must be thoroughly familiar.

The customary lines of specialization are the following:

I. Power engineering, including all forms of power development and transmission; this is of growing importance and promises very lucrative returns.

II. Railway mechanical engineering, including all questions in regard to locomotives, cars, and shops, both for steam and street railways.

III. Industrial engineering, including all forms of manufacturing and manufacturing processes, such as textile work, foundries, forges, machine shops, and ship yards. This is probably the most lucrative specialty in mechanical engineering.

IV. Heating, ventilating, and refrigeration are rapidly growing specialties which may be said to be almost in their infancy.

V. Gas engineering, including the design and manufacture of gas plants and gas engines, including also oil-burning machinery and the design and construction of oil engines.

VI. Chemical engineering, more properly called industrial chemistry, includes all chemical manufacturing processes using simple machines, where the chemical methods are at all involved and difficult, or where the chemical composition of the raw material and finished product must be carefully watched. Tanneries, alkali works, soap factories, and fertilizer factories would come under this head.

Electrical engineering is one of the few successful cases of specialization along the lines of the methods employed. It has been described as ninety per cent. mechanical and ten per cent. electrical, the ten per

cent. covering telephone, telegraph, and electrolytic work. The demand has been so great for men in this line of work, particularly as salesmen with engineering training, that it is one of the most attractive fields of engineering. Electric lighting and electric transmission of power come entirely under this head, as do street railways to a large extent. It is possibly more nearly an exact science than any other branch of engineering.

Mining engineering is one of the best illustrations of specialization along the lines of the work to be accomplished. It is a combination of civil engineering, mechanical engineering, geology, metallurgy, and chemistry. The life is rough and dangerous, filled with stirring adventures, but this is one of the most lucrative of the branches of engineering.

Metallurgical engineering is a very recent offshoot of mining and mechanical engineering. It includes the smelting and refining of ores, the production of the finished product and the study of the effect of the various processes of manufacture on the value of products. The remarkable results obtained in recent years from the alloys of iron have brought this branch of engineering into considerable prominence.

Two considerations apply to all branches of engineering. First, the training and knowledge should be broad and liberal for the greatest success. There is scarcely a line of engineering work in which a knowledge of some one of the other branches may not, at times, be not only valuable but frequently absolutely essential. While the engineer cannot know all of these, his equipment should be such as to enable him to promptly and readily obtain this knowledge. This can only be done by having a thorough fundamental training. To the young man starting out, the broad training is especially important, as it enables him to go to another line of work giving greater returns or to readily abandon a line of work which is no longer remunerative. In fact, all branches of engineering are so intimately related that it is almost impossible to say where one ends and the other begins. Second, in all engineering three types of engineer exist: the investigator, who is almost a scientist; the executive, who is almost a business man; and the designer, who comes in between. Science pays in glory and fame, seldom in money; business in money, seldom in glory and fame, although the notoriety which it frequently gives is mistaken for fame.

The secret of success in engineering, as in any other walk of life, is old, but let us repeat it all, "Whatsoever thy hand finds to do, do it with thy might."

FACULTY NOTES

W. P. Angel, former instructor in mathematics and physics, has been promoted to the position of instructor in physics.

C. H. Moorefield, instructor in civil engineering, is now on leave of absence with the national government as engineer in highway construction.

H. L. Stahl, former instructor in botany, has been promoted to the position of instructor in botany and chemistry.

R. A. Paine, former instructor in physics, is now with the General Electric Company, at Schenectady, New York.

J. W. Teany, assistant in forge work, died February 15th, 1910.

H. D. McTier, former assistant in wood work and musical director, has taken a similar position in Mississippi A. & M. College.

H. H. Hutchinson, former assistant in mathematics and assistant commandant, is in business in Staunton.

C. B. Walker, former assistant in chemistry and assistant commandant, is a chemist for the American Tobacco Company.

F. S. Holmes, former assistant commandant, has been promoted to the office of lieutenant colonel, which was made vacant by the resignation of Colonel Brodie.

A. G. Walker, former assistant in physics, is with the Westinghouse Electric and Manufacturing Company, Pittsburg, Pennsylvania.

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J. S. Thorp, former assistant in physics, is with the C. C. and O. Railway, at Erwin, Tennessee.

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J. T. Luttrell, former assistant in surveying, is in the government service on the Panama Canal.

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H. G. Jordan, former assistant in electrical engineering, has an electrical position with an iron company in northern Alabama.

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T. P. Hicks, former assistant in surveying, is with the C. & O. Railway at Baltimore.

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The assistant commandants for the session are Holmes, F. S., Wysor, D. C., Trenor, H. M., and Holmes, H. H.

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Among the instructors and assistants from the seniors of last session may be noted: F. P. Coleman, instructor in electrical engineering; V. E. Ayre and W. Y. Jenkins, assistants in physics; J. L. Hughes, assistant in surveying; and H. M. Robinson, assistant in geology.

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L. P. Smithey is the new instructor in modern languages. He graduated from Randolph-Macon in 1909. The following session he was instructor in that institution and there received the M. A. degree.

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F. L. Robeson has returned to the institute as instructor in mathematics and assistant in the mechanical laboratory. He had previously been assistant here for three years, leaving in 1907 to attend the Massachusetts Institute of Technology. He has since attended Columbia University and spent some time in practical work.

A. S. McCown, instructor in rhetoric, was assistant in English last session at Washington and Lee University and graduated from that institution last June.

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Acting Associate Professor Midyette, who took the place of Associate Professor Miles during the absence of the latter, is now studying at the University of Virginia.

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Associate Professors Brodie and Davis attended the summer session of Columbia University.

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Miss Mary Lacy, librarian, resigned in January and is now with the library of the Department of Agriculture in Washington.

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Miss Ethel Lacy, acting librarian, has been promoted to librarian. She attended the Summer Library School at Madison, Wisconsin, conducted by the Wisconsin State Library Commission.

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J. L. Phillips, State Entomologist, has resigned to give attention to his own horticultural interests; he is also conducting a general consulting horticultural business and is secretary and treasurer of the Shenandoah Valley Fruit Growers Association. W. J. Price is acting State Entomologist.

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Coach Bocock and Associate Professor Miles recently attended at Danville, Virginia, a meeting of the colleges of North Carolina and Virginia. The meeting was called with a view to forming an intercollegiate athletic association.

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Professor Carrier judged corn at the fair at Fredericksburg on September 27th, and also at Lynchburg, September 28th-29th.

Dr. Mayo underwent a successful surgical operation at Roanoke during the summer and is now in attendance on his duties.

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During the past season Dr. H. S. Reed has conducted field experiments in the State on diseases of apple foliage, cabbage club-root, and tomato diseases. In company with Dr. S. W. Fletcher he conducted field meetings at the following places: Harrisonburg, August 27th; Fontella, August 29th; and Christiansburg, September 7th. At each place the meeting was held on the experimental field and the results of the different experiments demonstrated before a good attendance of farmers.

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The *Plant World* for October contains an article entitled, "Notes on the Genus *Calostoma*," by Dr. H. S. Reed. The article gives descriptions and measurements of two species of these rare and interesting fungi collected on Brush Mountain. The specimens on which the descriptions are based are in the collection of the department of mycology and bacteriology.

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The results of ten months of metallurgical research by Dr. Barlow are to appear in the November number of the *Journal of the American Chemical Society* under the title, "The Constitution of the Binary and Ternary Alloys of Lead, Bismuth, and Cadmium." The article, illustrated by twenty-one diagrams, describes the methods used, collects and interprets the indications of about one hundred and fifty cooling-curve determinations, and completes the data needed for systematic investigation of the "fusible alloys" containing all four of the metals: lead, bismuth, tin, and cadmium.

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Associate Professors Hugh S. Worthington, F. H. Abbot, and H. E. Allen, who had been offered positions larger both in scope of their work and in point of salary, tendered their resignations last June, much to the regret of the Board, the faculty, and the students. This necessitated a rearrangement in the departments of modern languages and rhetoric. At the same time it became necessary to fill Mr. Allen's place in

the department of animal husbandry. Mr. J. J. Davis, formerly instructor, was promoted to an associate professorship in the department of modern languages, and an instructor procured to fill his former place. Mr. M. H. Arnold, A. B., Washington and Lee University, 1890; M. A. 1892, a teacher of broad experience and approved ability, was elected associate professor of rhetoric and instructor in public speaking. An instructor was also added to the department of rhetoric. Mr. E. W. Lawson ('06), a B. S. graduate in agriculture of the Virginia Polytechnic Institute, succeeds Mr. Allen as associate professor of animal husbandry. Since his graduation, Mr. Lawson has been a successful teacher and farmer, and he is cordially welcomed to the faculty of his Alma Mater.



Professor C. P. Miles is back at his former post in the department of modern languages after a year's study in the University of Göttingen, invigorated mentally and physically and splendidly equipped for his work at the V. P. I.



Colonel W. M. Brodie has been relieved at his own request from any connection with the military department, with which he has been so long identified; but has assumed larger and more important duties as associate professor of mathematics.

SOME COLLEGE ITEMS

Since the first of September, a number of marked improvements have taken place at the Young Men's Christian Association Building. Through the efforts of Mr. Lawrence Priddy, a fund was made available for repairing the building and putting it into good condition. The walls and ceilings have all received new coats of kalsomine, and the woodwork has been hard oiled. The offices, reading, and game rooms, and the stairway, have a pleasing shade of green for the walls with white ceilings dropped to the picture molding. The chapel and dormitory rooms have pink walls and cream-colored ceilings, as formerly. The furniture is being varnished, and the entire interior of the building is taking on a much more pleasing appearance than it has had for some time previous. A little later the floors are to be stained and the radiators and steam-pipes enameled.

The lockers are being repaired and hard oiled, and the gymnasium has been put into good shape. Punching bag, volley ball, indoor baseball, and basket ball add much to the pleasure and benefit derived by the students. A new feature planned for the bath room is the installation of a steam bath outfit to take the place of the tub bath which has not been used for some time on account of the superiority of the showers.

In addition to the internal improvements, the Y. M. C. A. is helping the college construct a wide concrete walk from the front of the building to the steps leading up to the barracks. This will enable the students to reach the building more easily in all sorts of weather. Everybody is glad to see these much needed changes taking place.



In the basement of No. 2 Barrack provision has been made for shower baths. In the future students will not be required to cross the quadrangle for bathing purposes.



Perhaps the greatest improvement ever made about the college has been in the two Academic Buildings. In the basement of each a furnace has been installed, and now steam heat makes comfortable the lecture-rooms, laboratories, library, and halls.

Concrete steps leading to the rear entrances enable the students to reach these buildings very much more quickly and conveniently than heretofore. The space underneath the steps is walled in and is used for coal bins.

The partition in the northeast basement of the First Academic Building has been removed and a concrete floor put in to give additional room for the mechanical laboratory. A concrete retaining wall has been built, at this end, extending the width of the building, to preserve the elevation of the main walkway and to afford better drainage facilities for surface water.



A reinforced concrete reservoir has been built at the pumping station, the object of which is to serve the ends of capacity and economy. The capacity of the pump is about four hundred gallons per minute, whereas the average flow of the spring is less than three hundred gallons per minute. Consequently, it has been necessary to throttle down the discharge from the pump in order to avoid the objectionable mixing of the contaminated branch water with the water from the spring. The new reservoir, besides entirely isolating the spring water from the branch water, has a capacity of some seventy thousand gallons. The pump can, therefore, be run at its full capacity, the supply tank filled in a shorter time, and a great economy in operation effected. Furthermore, the pump can now be run at its full capacity for twelve hours, which is a great protection in the case of fire.



President Barringer has generously presented the library with several volumes of the *Journal of the American Medical Association*, a gift which is very much appreciated by the scientific departments of the college.



In the past, the Crop Pest Commission has had almost solely police duties in the way of preventing pests from being brought into the State and in the eradication of scale and other insects where present in the orchards of the State. A new field of work is to be undertaken by this department, however, through its association with the Experiment Station at the Virginia Polytechnic Institute, and the large force of inspectors

throughout the State will be used also as investigators. By this means, maps of the State can be drawn, showing the prevalence of the hessian fly, etc., during certain seasons, and calendars formed giving broods of codling moth, etc., in each county.

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The first number of the *Skirmisher*, the new monthly student publication, has appeared. In contrast to the gray uniform of the *Gray Jacket*, the *Skirmisher* appears in white duck. It contains some forty pages of printed matter, nearly all from student pens. Under the heading of "Bum Jokes" may be noted the following:

Dr. Barlow: "How was iron discovered?"

Hurt: "I heard Pa say they smelt it."

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Both the Maury and the Lee Literary Societies have resumed activity. Preliminary meetings have been held and regular programs will be presented weekly.

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Last session the requirements of the four-year course in mining engineering were raised by changing general geology and mineralogy from the senior to the junior year, and economic geology from the fifth year to the senior year. Economic geology is now being given to mining students. The class of seven seniors has already begun field work on nearby mines and at a later date will take excursions to more remote mining districts. A new course is now being given for the first time to senior mining engineers providing additional training on rocks and minerals. A small pamphlet descriptive of the mining engineering course has been prepared and will be gladly sent, on request, to alumni for distribution to prospective mining students.

EXPERIMENT STATION NOTES

The leave of absence of Mr. E. B. Fred has been extended to June, 1911. Mr. Fred is studying under several of the best bacteriologists of Germany. He will receive his doctor's degree next June. He has had urgent invitations to accept positions elsewhere, but prefers to return to work for his Alma Mater.

Mr. A. W. Drinkard, Jr., has been granted a leave of absence of two years to pursue advanced work in plant breeding, horticulture, and botany at Cornell University, for the doctor's degree. He will return to us on the completion of his work. Mr. G. C. Starcher, a graduate of the West Virginia University, and a young man of considerable practical experience in horticulture, will fill Mr. Drinkard's position here during his absence.

Dr. E. A. Back, a graduate of the Massachusetts Agricultural College, and an investigator of the Bureau of Entomology of the U. S. Department of Agriculture for the past four years, has been appointed State Entomologist and Entomologist of the Experiment Station. He will not begin his duties until December 1st, having been asked by the Department of Agriculture to make an extended trip through Mexico and Central America in search of natural enemies of the white fly, a pest of Florida orange groves. The Experiment Station has had no Entomologist since the resignation of Professor Alwood.

E. R. Hodgson (V. P. I., '10) has been appointed assistant agronomist; A. D. Austin (V. P. I., '10) is superintendent of the Experiment Farm at Staunton.

The Experiment Station now operates for the State Board of Agriculture the Experiment Farms at Saxe, in Charlotte County, and at Staunton, in Augusta County. Professor Carrier is in general charge, with a local superintendent at each point.

Bulletin 187, "Lime for Virginia Farms," by Dr. W. B. Ellett, has created more discussion in the State than any of the other recent publications of the Experiment Station. The State seems to be passing through a "lime craze," such as has frequently occurred in the past; and Dr. Ellett points out the more conservative and rational view, based on experiments and centuries of experience with lime.

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Two recent bulletins by the Dairy Division have had wide circulation. The first, on "The Production of Clean and Sanitary Milk," by W. K. Brainerd, was sent to all the physicians and health officers of the State, with gratifying results. The second, on "Hand Separators," by the same author, shows a loss of over a million dollars a year in Virginia from inefficient separation of milk; and includes exhaustive experiments on the efficiency of hand separators.

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The most generally popular publication issued by the Experiment Station is Circular No. 7, "Fighting the Insect Pests and Diseases of Orchard, Field, and Garden Crops," by H. L. Price. The first edition of twenty-five thousand copies, issued in March, 1909, was exhausted within six months, and the revised edition of forty thousand copies, issued in March, 1910, is already getting low. There have been five requests from parties outside the State for permission to reprint this circular, and these requests the Station has granted, including permission to translate it for distribution in two foreign countries.

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The mailing list of the Station has grown from thirteen thousand to twenty-three thousand names during the past three years.

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The Experiment Station is continuing its new policy of doing as much of its experimental work as possible out over the State. Aside from the work at the six tobacco experiment stations, and at the two experiment farms of the State Board of Agriculture, the Station has under way a number of experiments in coöperation with farmers in different parts of the State. Among these are experiments on a rotation of crops for hog pasturage, conducted at Norfolk and Appomattox, by

Dr. Mayo; upon leaf diseases of the apple, conducted at Fontella and Harrisonburg, by Dr. Reed; upon diseases of cabbage, conducted at Rural Retreat, by Dr. Reed; and upon pasture management, conducted in several sections by Professor Carrier.

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Publications soon to be issued include bulletins on "Alfalfa Culture in Virginia," by Professor Carrier; "Diseases of Swine," by Dr. Mayo; "Coöperative Herd-Testing," by Professor W. D. Saunders and C. W. Holdaway; and the annual report, which contains the more technical results of experiments.

ALUMNI NOTES

Hereafter, the Alumni Register will appear annually as the January number of the BULLETIN. It will, therefore, be unnecessary to include information relative to positions and addresses in the July and October numbers.

In September, a circular letter, accompanied by a blank form for biographical record, was forwarded to every alumnus. Only one hundred and thirty-two replies have been received to date (October 10th) from the seven hundred and ninety-seven letters mailed. Twenty-eight letters have been "returned to writer" on account of insufficient address. The ratio of such letters to replies received is twenty-one per cent. This shows the importance of keeping the office informed as to changes in address. When living in a city, the street number should always be given.

It is hoped that all biographical records may be received very soon, in order that the work of compiling matter for the Alumni Register may not be delayed.

Information is desired concerning the whereabouts of the following alumni:

Armstrong, I. H., Barton, W. S., Bonsack, J. E., Buck, J. E., Caldwell, W. A., Campbell, C. C., Correll, H. L., Garnett, T., Glover, R. E., Hardesty, F. D., Harvey, U., Hobday, P. A., Hudgins, J. D., Hughes, S. T., Jones, J. D., Kent, R. C., Latane, R. P., Martin, F. L., Miller, G. C., Osborne, L. E., Payne, R. L., Phillips, W. J., Porcher, C. G., Rogers, E. P., Stuart, R. C., Van Dyke, J. H., Watkins, C. L., Williams, C. S.

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In connection with the request that salaries be given on the new form for biographical records, it may be of interest to present a copy of an article on the Michigan Agricultural College which appears in the October number of the *Bulletin* of the Society for the Promotion of Engineering Education.

Michigan Agricultural College.—Dean Bissell reports that from statistics furnished by one hundred and ninety-six of the two hundred

and sixty-nine engineering graduates of the Michigan Agricultural College, classes '88 to '07 inclusive, the following table has been prepared:

CLASSIFIED VOCATIONS OF ENGINEERING ALUMNI,
MICHIGAN AGRICULTURAL COLLEGE

Vocations	Number	Average Salaries	Number Reporting Salaries
Presidents, secretaries, managers, etc.....	21	\$2,697	12
Executive, technical, consulting, teaching, etc.	64	2,564	57
Superintendents, foremen, chief draftsmen, inspectors, etc.	68	1,598	60
Assistants, draftsmen, apprentices, clerical, etc.	33	1,239	29
Non-Engineering	10	2,550	8

The following are the average salaries for classes '02 to '07, inclusive:

Class of '07.....	\$1,299	32 reporting out of 44
Class of '06.....	1,569	33 reporting out of 42
Class of '05.....	1,635	17 reporting out of 26
Class of '04.....	1,481	16 reporting out of 19
Class of '03.....	1,913	11 reporting out of 26
Class of '02.....	2,250	5 reporting out of 20

1876

H. D. Ayre is the inventor of a corn cultivator.

1880

Isaac Diggs is the author of a book on law, entitled, "Virginia Corporation Digest."

1895

W. E. Dodd, Professor of History, University of Chicago, delivered an address on "The Life of Thomas Jefferson" at Richmond College, September 29th, 1910.

G. T. Surface, Assistant Professor of Geography, Yale University, is the author of pamphlets which have recently appeared, entitled, "Thomas Jefferson, a Pioneer Student of American Geography," and "The Commercial Woods of the United States and Their Uses."

1897

A pamphlet recently issued by The New York Life Insurance Company, and entitled, "An Aristocracy Founded on Labor," contains the following as opening paragraphs:

"At one of the recent conferences some one regretted that, up to that time, no President of the Big Club had come from the South. This can no longer be said. President Priddy, while not accredited to a Southern Branch, is distinctly from "the South," as his speech doth signify. He was born in Virginia thirty-six years ago, and was graduated from the Virginia Polytechnic Institute in the Class of 1897. He began in July, 1900, with the New York Life as an agent at Richmond, Virginia, and was remarkably successful from the start, winning membership at once in the \$100,000 Club, and staying there only long enough to go a step higher, in the same year, into the Big Club. In 1903 he was appointed Agency Director at Baltimore, and was transferred, in 1905, to the Union Square Branch, New York City. As an Agency Director, Mr. Priddy all the time did a very large personal business. In fact, in nine years of service, he has been nine times in the Big Club, with the magnificent volume altogether of \$3,142,500 paid insurance. He jumped from \$327,750 last year clean to \$1,157,000 this year (one hundred and seventeen policies), which is the greatest volume secured by any president of the Club, save one.

"The new President is a hard, persistent, systematic worker. He is very thorough. He goes to the bottom of the case. He leaves nothing undone. If there are any snags, he digs them up, and never rests until the insurance is placed and paid for. The notable increase in the presidential business is because he has developed the ability to get and handle large cases—and he has had some mighty big ones this year—displaying special talent for personal work among eminent men and women. The New York Life is proud of Mr. Priddy and the record which lifts him into prominence as one of the greatest insurance writers of the day."

1899

F. C. Carper died in Roanoke, Virginia, on August 22d, 1910.

S. H. McGregor died at his home in Nelson County, Virginia, on October 3d, 1910.

Kendall Weisiger has been recently promoted to the position of traffic engineer of the Southern Bell Telephone Company, Atlanta,

Georgia. The following article appeared in the engineering journal, *Telephony*, September 17th, 1910:

**"KENDALL WEISIGER APPOINTED TRAFFIC ENGINEER OF
SOUTHERN BELL TELEPHONE COMPANY.**

"The position of traffic engineer of the Southern Bell Telephone Company was, on September 1st, assumed by Kendall Weisiger. He will have charge of all traffic engineering and traffic supervision of the Southern Bell Company in the seven states where it operates.

"The steady advancement which this young Virginian engineer has made, and his work, mark him as a man with a future, as well as a past, which is a source of pleasure to his friends and should be an encouragement to other ambitious young men in the industry.

"Mr. Weisiger was born of native parents in Richmond, Virginia, in the year 1880. Realizing the importance of getting an early start in the career for which he intended to fit himself, he became interested in electrical experiments at the age of eight years. Like many another boy, he put in time after school installing electric bells, telephones, etc. For some years past, Mr. Weisiger has been a diligent student, but it is on record that when he had an extraordinarily large job, he "played hooky" from school in order to finish it in time. Ever since then, finishing things on time has been one of his hobbies.

"By the time he was ready to go to college, he had acquired considerable experience of a practical nature, and was employed to maintain the electric light plant at the Virginia Polytechnic Institute, Blacksburg, Virginia, while he was a student there. At the same time he was manager of the local telephone company's fifty line magneto plant. He drew \$5.00 per month for this. He worked for a large telephone company during vacations. During the last two years of his college course, he paid his tuition out of his earnings.

"Graduating in 1899, with a degree in the course of electrical engineering, he determined to gather experience which would be useful in the future, and worked for telephone companies in Pittsburgh, Chicago, Buffalo, and New York City. Suddenly, the sight of a steamship bound for his native town crystalized a desire to return to his home, and, giving up a promising position, he left New York on the next boat.

"In 1901 he joined the engineering department of the Southern Bell Telephone and Telegraph Company, where he was employed as inspector. He was on the road for four years in this capacity. During this period, he was married in Charleston, South Carolina. In 1905 he was transferred from the road to the general office, as equipment engineer, and was later made general traffic supervisor. While holding this position, he prepared instructions which form the basis of the operation of the traffic department. Later, he was transferred back to the engineering department as assistant chief engineer, or next in authority to

Chief Engineer George J. Yundt. The latest appointment, effective September 1st, 1910, made him traffic engineer, with the responsibility for service in the entire territory.

"Mr. Weisiger is a hard worker who makes his efforts count by avoiding ineffective exertion and the misdirected use of energy. He has faith in system, and knows how to keep a system under his control. Being a believer in maps, records, and curves, he has his salary for a number of years hence worked out in the form of a curve. Up to date, he has beaten the curve, which shows that this hustler in execution is conservative in planning."

1901

C. A. Jackson, of the Pelton Water Wheel Company, is the inventor of a photographic exposure meter. He has also designed a new type of water wheel governor.

J. E. Lear was awarded the degree of Electrical Engineer by the Texas A. and M. College for special research work in electrical engineering at that institution.

1902

Paul Tudor Jones, the Third, was one year old on September 23d, 1910.

1903

J. S. Counselman was married in June, 1910. The communication did not give the maiden name of his wife.

Notice has been received of the engagement of H. C. Michie to Miss Clara Louise Robinson, the marriage to take place this fall.

1904

A daughter was born to C. C. Osterbind on Friday, October 14th, 1910, at Blacksburg, Virginia.

F. R. Butler was married to Miss Louise Osgood on October 12th, 1910, at Huntington, West Virginia.

1905

C. K. Hildebrand, Jr., was one year old on July 2d, 1910.

W. B. Lanford was married to Miss Marion Blanchard Martin at

the Bethel Baptist Church, Fluvanna County, Virginia, on September 14th, 1910.

The engagement of W. C. Rohr to Miss Koontz, of Woodstock, Virginia, has been announced. The marriage will take place on October 19th, 1910.

B. C. Tynes announces that he has formed a partnership for the general practice of law with Lawrence C. Witten, Huntington, West Virginia. (September 20th, 1910.)

E. P. Wood was married to Miss Jennie Edloe Cathright, of Newport News, Virginia, on August 24th, 1910.

1906

R. G. Sugden was married to Miss Mary Virginia MacLean, on September 14th, 1910, at Harrisburg, Pennsylvania.

Mrs. Benjamin Milnes, of Richmond, Virginia, announces the engagement of her daughter, Alice Maria, to Herbert Clinton Whitehurst, also of Richmond. The wedding will take place this fall.

1907

C. D. Montague was married to Miss Selene Radford, of Forest, Virginia, on August 17th, 1910.

1908

W. L. Mallory is joint author with Professor W. K. Brainerd, V. P. I., of Bulletin No. 186, of the Virginia Agricultural Experiment Station, entitled, "The Efficiency of Hand Separators."

1909

J. W. C. Catlett is with the firm of Catlett Bros., melon growers, Bridges, Virginia. This firm has the record for the largest melons in the State; weights, one hundred and two and one hundred and five pounds.

V. V. Kelsey has designed a machine for generating gas from gasoline.



On August 16th, 1910, the President of the Association appointed

the following alumni as members of the Welfare Committee for the year 1910-11:

W. H. Beale, Chairman; G. H. Derrick, W. B. Ellett, J. H. Gibboney, H. T. Hall, G. W. Hutchinson, L. L. Jewel, L. O'Shaughnessy, J. W. Stull, E. P. Waller.

Since there was no election of the Executive Committee, as provided for in the Constitution, the President of the Association reappointed the members who had served for the year 1909-10. The following men, therefore, constitute the Executive Committee for the year 1910-11: A. Black, Chairman; W. G. Conner, A. W. Drinkard, J. S. A. Johnson, C. Lee.